Local social capital and entrepreneurship
Westlund, Hans;Bolton, Roger
Small Business Economics; Sep 2003; 21, 2; ABI/INFORM Collection
pg. 77

Local Social Capital and Entrepreneurship

Hans Westlund
Roger Bolton

ABSTRACT. We aim to contribute to the analysis of the role that spacebound social capital plays in local/regional entrepreneurship. We compare social capital with other forms of capital. The conclusion is that in the main, social capital can be analyzed in the same way as other capital but it has some important special attributes. With these attributes as starting point we sketch an outline model of how the spatially-defined producer surplus and consumer surplus form a *place surplus*, and of the role played by social capital in the creation of the producer surplus. A "rereading" of Schumpeter shows that he was aware of several aspects of what we denominate entrepreneurship-inhibiting and facilitating aspects of social capital. Finally, we discuss some formal economic modeling approaches to the theoretical relationship between social capital and entrepreneurship.

1. Introduction

During the 1990s a new concept of capital, *social capital*, has come into general use alongside the established concepts of financial, real, and human capital. We believe that social capital is as relevant to the analysis of small business and entrepreneurship as those latter concepts of capital, and thus we explore some of the many connections between social capital and entrepreneurship.

Unlike the latter concepts, the idea of social capital does not originate from the discipline of economics but has its roots primarily in sociology. It has been said to have originated with the classical sociologists of the nineteenth century (Portes and Landolt, 1996). The first explicit use of the term in approximately its present connotation seems to have been in the United States by Hanifan (1916). Jacobs (1961) used the concept in her celebrated book on American cities, and the anthropologist Hannerz (1969) used the term in his book on ghetto cultures. In Europe it is Pierre Bourdieu (1980) who has made the concept of *social capital* a familiar one, alongside his better-known concept of *cultural capital*. Social capital, according to Bourdieu, is "the sum of the resources, actual or virtual, that accrue to an individual or a group by virtue of possessing a durable network of more or less institutionalized relationships of mutual acquaintance and recognition" (Bourdieu and Wacquant, 1992, p. 119). Another scholar who has defined social capital as an individual-related resource is Loury (1977, 1987).

Coleman's (1988, 1990) definition of the concept places it on a different plane from that of the individual. In *Foundations of Social Theory* (1990) he uses the figure below to explain the distinction between human capital and social

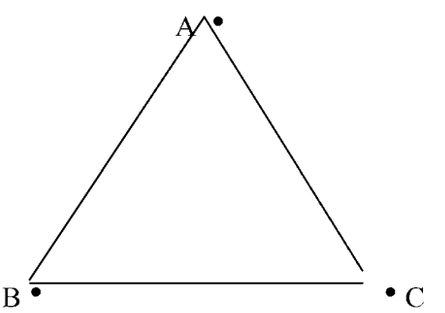

Figure 1. An example of the relationship between human capital and social capital according to Coleman. "Three-person structure: human capital in nodes and social capital in relations." Coleman (1990) p. 305.

Final version accepted on November 11, 2001

Hans Westlund
Swedish Institute for Growth Policy Studies
Box 4
SE-831 21 Östersund
Sweden
E-mail: hans.westlund@itps.se

Roger Bolton
Williams College
Williamstown, MA
U.S.A.
E-mail: Roger.E.Bolton@williams.edu

Small Business Economics **21**: 77–113, 2003.
© 2003 *Kluwer Academic Publishers. Printed in the Netherlands.*

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

capital. Human capital is the individual-related resource (in the human nodes), while social capital is to be found in the links (relations) between individuals/actors.

Coleman underlines the difference between social capital and private resources further when he argues that most social capital can be viewed from a public-good aspect, i.e., that it forms "an attribute of the social structure in which a person is embedded" and that "social capital is not the private property of any of the persons who benefit from it" (1990, p. 315). Like Bourdieu, he regards social capital as a network attribute. But in Coleman's eyes it is the links within the group (and between groups) that *constitute* social capital, whereas Bourdieu takes the view that it is the individual's/group's external network that gives access to capital. To put it another way, Bourdieu regards social capital as a resource that is *procured* via the links to the *nodes* (individual/group), whereas Coleman's standpoint is that social capital *consists of* the links within and between networks/groups.

In his study of Italy which has attracted much attention, Putnam (1993a) uses the final chapter to explain why differences of civic influence between Italy's regions result from differences in the amount of social capital. His definition of social capital has much in common with Coleman's: "'social capital' refers to features of social organization, such as networks, norms, and trust, that facilitate coordination and cooperation for mutual benefit" (Putnam 1993b). Putnam also agrees in characterizing social capital as predominantly in the nature of a public good (1993a).[1]

Objections have been raised against Putnam's view of social capital. For example, Portes and Landolt (1996) have criticized him for focusing only on the positive effects of social capital without considering the negative ones. They argue that there is also "negative" social capital and give examples of how various kinds of networks have a clearly exclusive function. They also maintain that common norms create conformity, which implies restrictions on both individual freedom and business initiative. One example is from the Andean highlands of Ecuador where many successful businessmen are Protestant. By shifting religion they have removed themselves from the obligations for male family heads associated with the Catholic Church. "There is considerable social capital in ghetto areas . . . inner-city youth gangs are also social networks. . . . The same kind of ties that sometimes yield public goods also produce 'public bads'" (Portes and Landolt, 1996). Portes (1998) has summarized four negative consequences of social capital: "exclusion of outsiders, excess claims on group members, restrictions on individual freedoms, and downward leveling norms." Putnam (2000) has responded to this criticism by recognizing "the dark side of social capital" and that strong social capital may counteract tolerance.

Hardin (1999) has stressed a fundamental distinction between the view of Coleman and the views of political scientists as Putnam, Brehm and Rahm (1997), and Fukuyama (1995). Whereas the function of social capital according to Coleman (1988a) is to "facilitate certain actions of actors," the political scientists' prime concern is with how actions of the actors *"facilitate the working of institutions*, including the whole of government. . . . For Coleman, various relationships enable individuals to trust each other; for the others, individual-level trust enables institutions to work well" (Hardin, 1999, pp. 171ff, emphasis in original).

The brief account above has been based on the discussion within those disciplines in which the concept of social capital has so far been chiefly developed, that is to say sociology and to a certain extent political science and business economics. Reviews of research have been compiled by, e.g., Jackman and Miller (1998), Woolcock (1998), and Adler and Kwon (1999). Despite the fact that capital is a traditional economic concept, the links established with economic capital theory have been very weak. It was not until the middle 1990s that many economists began to discuss the concept of social capital. Since then the literature has expanded considerably, even within economics. Nevertheless, few attempts have been made to integrate social capital into the machinery of economic theory, though Dasgupta (2000) and Ostrom (2000) have made significant contributions. Such a leading economist as Solow (1997) has even questioned whether social capital can really be analyzed within the same conceptual apparatus as traditional capital.

However, another celebrated economist and

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Nobel laureate, Becker, has discussed the concept and connected it to the utility function of the individual: "The utility function at any moment depends not only on the different goods consumed but also on the stock of personal and social capital at that moment" (Becker, 1996). Becker's social capital consists of preferences, created by past experiences, which "directly yield welfare rather than merely casually contribute to the production of other things that yield welfare" (Hardin, 1999). This view seems to differ fundamentally from that of Coleman, that social capital is a resource of the actors, which they use to increase their utility. But this does not necessarily have to be the case. Social capital may very well be resources and preferences simultaneously. Social capital may "facilitate certain actions of actors" at the same time as it increases an actor's individual utility. Thus, in the context of this paper, social capital is connected to entrepreneurship both as a resource for action and as preferences for, e.g., an "entrepreneurial lifestyle."

The connection between sundry forms of social capital and economic change runs like a golden thread through both the economic and sociological literature. However, with the main exception of certain studies of ethnic groups or minorities (e.g., Kyle, 1999) few contributions have explicitly discussed the link between social capital and entrepreneurship. However, certain authors in business economics are increasingly discussing aspects of these issues in terms of "corporate entrepreneurship" (Chung and Gibbons, 1997) and "entrepreneurship as a collective phenomenon" (Johannisson, 2000). Policy interventions aiming at strengthening the social capital of SMEs to support enhanced innovations have been investigated by Cooke and Wills (1999), who have operationalized and measured SMEs' social capital in terms of integration, synergy, integrity, and linkage. Another methodological issue, measuring of trust and its effects on firms' risk behavior, has been considered by Nooteboom et al. (1997) and Nooteboom (2000).

We adhere both to the Coleman tradition that social capital is an attribute of a group/network which may be more or less well defined or may extend to an entire society, and to Becker's social capital that constitutes a factor in the utility function. One circumstance which has attracted little special notice is that in many cases social capital can be defined not only in terms of a group's/network's formal or informal rules and norms, or as a factor determining preferences, but also by *spatial relationships*. We shall concentrate on the spacebound social capital that is dominant in a region, or among certain groups within a region, and which thereby functions as a public good (or "public bad," which may nevertheless be "good" for certain actors/groups). We analyze the role of spatially limited social capital in producing local/regional entrepreneurship. Scholars have used the concept of social capital to enrich models of human capital formation, labor supply, migration, public goods provision and other political behavior, free riding, degree of exploitation of market power, and other economic behavior. However, there is not yet much theorizing on the role of social capital in entrepreneurship and we seek to make a contribution to filling the gap.

Our aim is also to contribute to the analysis of the way in which spacebound social capital contributes to a producer surplus in a region. We define spacebound social capital as spatially-defined norms, values, knowledge, preferences, and other social attributes or qualities that are reflected in human relations. In network terms this may be expressed as meaning qualities, capacity, objectives, and quantity of the nodes (actors) and qualities, capacity, objectives and quantity of the links in primarily informal, spatially-demarcated social networks. Thus, more substantial, formal institutions and organizations, which Hardin (1999) and Krishna (2000) denominates *institutional capital*, are not included in our definition.

We explore three broad topics:

1. Social capital as a *community characteristic* that facilitates or inhibits the kind of innovative, risk-taking behavior that is part and parcel of entrepreneurship. In this respect social capital acts as part of the *resource endowment*, favorable or unfavorable. Our thinking here is in the spirit of Coleman (1988a,b, 1990).
2. Social capital as a community characteristic that enters directly into the utility function of an individual and gives satisfaction or dissatisfaction in itself, and which in turn shapes individuals' behavior in important respects –

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

in the broadest terms, behavior that represents persons' seeking or avoiding certain social capital contexts. That is, individuals get positive or negative utility directly from the existence *per se* of social capital, and take certain actions – searching, escaping, moving, compensating – accordingly. In this connection of course we are especially interested not in individuals generally, but in individuals who are *actual or potential entrepreneurs*. Again it is clear that we should allow the direct role to be either positive or negative: a person may enjoy knowing that social capital exists in a community, or she may loathe the existence of it. Which it is depends on just what kind of social capital – what kinds of bonds, loyalties, networks, mutual commitments, trust, and loyalties – exists in the community. Our putting social capital into the utility function may appear superficially as following Becker (1996, ch. 1), but as we elaborate below there are in fact differences between Becker's approach and ours.

3. Social capital as a community characteristic that facilitates or inhibits efforts of the permits the *community as a whole* to act effectively as a collective entrepreneur, innovating in new ways to create business opportunities and also to solve other social problems. Social capital of this kind we call *entrepreneurial social capital*. Here we are theorizing in the spirit of Johannisson (2000), who says that entrepreneurship is a "genuinely and collective phenomenon" (p. 3) and our thoughts also resemble some of those of Putnam (1993a, b, 1995a, b, c, 1996, 2000). To repeat, it is obvious that the effects of social capital here can be either positive or negative, as indeed both Johannisson and Putnam stress.

In discussing those three main topics, we are emphatic in recognizing that the networks, mutual commitments, trust, and loyalties that characterize a community might inhibit entrepreneurship, individual or collective, rather than facilitate it. The reason is well known (see, for example, Durlauf, 1999 for a recent statement) and is the same as the reason why social capital in certain groups, as in gangs or criminals, can have antisocial effects. It is by now a commonplace criticism of the most naïve notions of social capital that it is not always socially productive. Tight bonds between individuals who are acting badly qualify as social capital, but the result is not welcome to the society as a whole. Tight bonds between individuals may well stifle entrepreneurship – that is, may stifle "marching to a different pipe" or "coloring outside the lines" – rather than encourage it.

If the characteristics of the community do in fact facilitate entrepreneurship, then we can speak of "entrepreneurship-facilitating social capital," or EFSC, for want of a better phrase than that clumsy one. If, on the other hand, the characteristics inhibit entrepreneurship, then we can speak of "entrepreneurship-inhibiting social capital," or EISC, again for want of a better phrase. The adjectives "entrepreneurship-facilitating" and "entrepreneurship-inhibiting" merely suggest one or the other effect of social capital, one effect among many effects, and do not suggest that the social capital involved is separable from the other kinds of social capital that social scientists have written about.[2]

Section 2 compares social capital with other forms of capital in the economic sense. The conclusion is that in the main, social capital can be analyzed in the same way as other capital but it has some important special attributes. Section 3 takes these attributes as its starting point and sketches an outline model of how the spatially-defined producer surplus and consumer surplus form a *place surplus*, and of the role played by social capital in the creation of the producer surplus. Section 4 introduces entrepreneurship into the model by "rereading" Schumpeter and discusses social capital in interfirm relations and also the entrepreneurship-inhibiting and facilitating aspects of social capital. Section 5 describes some formal modeling approaches to the theoretical relationship between social capital and entrepreneurship. Section 6 sums up and offers some concluding comments concerning further research from the perspective presented in this paper.

2. Social capital as capital in the economic sense

To what extent can social capital be compared with other forms of capital and thus analyzed in the same way as they? In this section we compare

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

social capital with other capital forms in certain respects crucial to entrepreneurship: productivity, vintage aspects, accumulation, rights of possession, and complexity and levels of aggregation.

2.1. *Productivity*

Both Coleman and Putnam regard group-related social capital as productive. If social capital is viewed as something that generates *positive externalities*, then from the economic standpoint there is no reason to call this into question.[3] Then how is the "negative" social capital which Portes and Landolt (1996) and others discuss to be characterized from the productivity standpoint?

One basic answer is that since neither other capital nor other factors of production always produce a good, the same applies to social capital (Collier, 1998; Ostrom, 2000). In purely economic terms unbalanced investment and overinvestment of both real capital and social capital may result in falling yield (Gabbay and Leenders, 1999). Excessively strong links can be very costly to maintain (Hansen, 1998).

A more detailed answer to the question can be derived from modern economic network theory. Economic networks can be regarded as capital in which investments have been made.[4] One purpose of investment may be to obtain or guarantee a certain market share. By creating relationships with customers in diverse ways (advertising, personal contact, servicing contracts, etc.) a firm attempts to shut out competitors from a network it has established. It can build similar networks with suppliers. An established firm with strong customer and supplier networks can use these to shut out new and more productive capital from the market. This new and more productive capital has to find new, unestablished market segments or else break down parts of the old capital's customer and supplier networks in order to force its own way into the market.

The relation between positive and "negative" social capital can be viewed in a similar light. Capital (excepting financial capital) is timebound. The social capital of groups and regions that is considered negative from society's standpoint came into being once upon a time as a rational solution intended to safeguard and strengthen the group's interests. Social capital, like real and human capital, is a "sunk cost." If it is not changed *pari passu* with other changes in society it becomes obsolete and non-productive and so withers away (Sandefur and Laumann, 1998). If obsolete social capital is retained and kept in repair then in the worst case it will become counterproductive. This can be compared with other obsolete capital forms which tie up resources for which there might be some more productive alternative use.

In such a situation, by creating strong networks, actors/groups have shut others out from the resources and markets to which they have access. Putnam's argument that lack of (positive) social capital implies a "never cooperate" strategy (Putnam, 1993a, p. 177) must therefore be called in question. Cooperation outside a group's own network is limited precisely because cooperation inside its own network corresponds best with its aim in the given circumstances. Just as new and old economic networks compete on the product markets, positive and negative social networks compete on their "markets." As long as the old – and from society's standpoint less positive – networks retain the power to offer the group higher and/or more reliable satisfaction of needs than the new, flimsily established and more positive networks – and as long as the old networks retain the power to punish those who break away from them – the old social capital will maintain its grip, despite the fact that it is less productive from society's standpoint. A customer of many years' standing, with rebate and bonus benefits, has "invested" in a trademark and will be reluctant to abandon it for an uncertain new brand – especially if his investment will become valueless and he will be punished by withdrawal of his perquisites. In similar fashion the old social networks in which the participants have invested in various ways retain their hold over their individuals and groups.

The argument above is not valid merely within a region or country. Even entire countries or groups of countries can be regarded, from a Western country's perspective, as being dominated by a body of social capital that inhibits entrepreneurship and improvement of productivity. However, this social capital produces a satisfaction of needs at a certain level in combination with preservation of traditional cultural norms, which

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

does not make a transition to more Western-style norms a self-evident prospect in the short term.

The conclusion is that although, from an overall social perspective, "negative" social capital is less productive than "positive" – and perhaps even counterproductive – at the micro level it produces a satisfaction of need, which the weaker (in this group or region) "positive" capital cannot offer. A group's internal social capital can be used both positively and negatively from the larger society's standpoint. What determines whether social capital is used positively or negatively is whether the group's goals are in harmony with society's interests. A group that has been the bearer of socially-positive capital for a period can come into conflict with society as time goes on if the latter changes and the group does not change its internal social capital. Accordingly it becomes necessary to distinguish between internal and external social capital.[5] What decides whether *internal* social capital is used positively or negatively is whether the group's *external* social capital, i.e., the links to society at large, are positive or negative.[6]

The above discussion on social capital's contribution to productivity has centered on Coleman's view of social capital as a resource. In Becker's perspective, it is past experiences that form the social capital that affect a person's preferences. When it concerns the household's utility, Becker expresses the relationship in the following general terms: ". . . the past, present and future are still linked through the capital stocks that determine the productivity of commodity production. Present accumulation of personal and social capital changes household productivity in the future" (1996, p. 5). Can then the preferences of the individuals be graded after their degree of productivity? The answer is that the *actions resulting from individual preferences* differ when it concerns productivity. Individuals use (consume) their time more or less productively. Certain consumption, e.g., smoking may raise productivity in the short term, but definitely decreases it in the long term.

Thus, concerning productivity social capital differs from other forms of capital. Whereas other forms of capital are neutral with regard to society's interests, a certain proportion of social capital consists of nodes/actors with preferences and links, which determine whether this particular item of social capital is positive or negative for society. The same type of links between society's actors determines whether other capital forms are used positively or negatively from society's point of view.

2.2. *The vintage aspect*

The fact that real capital consists of different vintages that become less productive with age is an important feature of the modern theory of capital. Human capital has similar properties. Social capital too is timebound and ought to be regarded as historical investments, but it differs from real capital and human capital in that, as with wine, older vintages are not necessarily less valuable than new. Not all old social capital is necessarily "negative" and not all new "positive." In this respect it has more of a vintage aspect in its original meaning than the other two forms of capital.

It can be compared to a vintage port wine more than to a personal computer. Port wine is a blend of different vintages to produce the best taste. Social capital is a blend of norms, values, traditions, knowledge and preferences of an extremely wide range of vintages in which the older ones function as a stabilizing factor and the newer ones as factors for change. Certain elements among the older vintages undoubtedly have negative effects, but social capital, unlike port wine, does not permit of these elements being omitted by a wine-blender.

Social capital must be renewed in order to preserve its productive function in the long term, i.e., it has to be topped up by new vintages while simultaneously preserving "the best" of the old. Without this renewal, it becomes increasingly out of step with economic developments and assumes an increasingly negative character.

2.3. *Accumulation and maintenance*

The various forms of capital are built up, generally speaking, by means of combinations of equity capital, other forms of capital, and labor. Financial, physical, and human capital need contributions both of each other and of social capital in order to come into being and accumulate. The situation with human capital is often the same in

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

practice. Theoretically speaking, it can accumulate without the direct intervention of financial or physical capital – but not without social capital. Many forms of social capital are even less dependent on financial and physical capital than human capital is. But certain types of real capital facilitate the creation of social capital, e.g., public meeting places, and maintenance of pre-existing real capital, e.g., preservation of historic monuments, also helps. Human capital in many different forms also helps to generate social capital. What is invested in social capital most of all, however, is human time.

Coleman (1988a) also claims that social capital differs from other forms of capital in a more crucial way, that social capital primarily is a *by-product*. Whereas other forms of capital are built up deliberately as ends in themselves, he sees social capital as an unintentional consequence of social interaction with other, frequently profit-oriented, purposes. As noted above, Putnam voices the idea that social capital, unlike physical capital, increases when it is "used" and diminishes when it is "not used." The consequence of what people are doing when, in Putnam's words, they "use" social capital (i.e., consume it in the economic sense), is that an unintentional investment takes place! In this view, the fact that consumption normally results in an investment makes social capital a very special item compared to physical capital. In this respect, Putnam's and Becker's views are in fact very close to each other, as the social capital of Becker is also a product of past consumption. But this peculiarity also explains why most economists are sceptical of the use of the term "capital" when discussing social interactions. Arrow (2000) claims that the term "capital" implies among other things a deliberate sacrifice in the present for future benefits.

However, that criticism might be directed towards the concept of human capital as well. Many people who study, i.e., invest in human capital, like what they are doing and do not consider it a sacrifice. Human capital in the form of knowledge and competence is also cumulated through work without any deliberate sacrifices. Thus, if human (and social) capital is considered as "capital," Arrow's criteria cannot be used. A solution could perhaps be to interpret "sacrifice" as "restrain from production." Leisure/consumption is from a strict production perspective a necessary sacrifice for maintaining and improving man's production capacity. Physical capital does not need leisure, only maintenance/reinvestment.

Whether any human or social capital is cumulated during a person's non-productive time, or these forms of capital are just maintained or even depreciate, is determined by what kind of consumption he devotes his time to. Certain use of leisure – e.g., certain social activities – definitely increases the social capital of an individual, a group, or a community. Individuals and organizations that decide to devote their time and resources to different activities might thus be considered as investors in something that will render returns in the short or long term. The engagement of an individual in a non-profit association is thus not only consumption of time but also an investment in a social network – an investment that yields non-material returns in the form of status, contacts, etc. Coleman's point that individuals' and organizations' decisions to invest in social activities *also* bring unintentional consequences on higher levels should be noted here. What are intentional individual investments thereby also contribute to unintentional effects in a group, a place, or a region.

However, it can also be the case that actors use/consume their social capital without maintaining or reinvesting in it. Anyone who makes use of his social networks disproportionately more than he puts into them is in this situation. The probable consequence is that the person's/group's external links will deteriorate. Utilization without maintenance/investment therefore wears out social capital just as it does physical capital. This can be expressed in network terms by saying that a node that does not act reciprocally in a reciprocal network tends to lose its links. Becker's individual social capital has similar characteristics. A too limited social capital means weakly diversified preferences that the individual simply may become fed up with. Without new experiences, i.e., accumulation of new social capital, the individual's utility diminishes. Non-profit organizations furnish another example showing that social capital can wear out when it is used. Organizations depend for their survival on a certain amount of new recruitment as members drop away. If this new recruitment does not happen despite the

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

members' using their social capital, the capital wears out and the activity fades away.

Social capital also differs from physical capital in another important aspect, by being much harder to construct through external interventions. A national or local government can grant means to different types of infrastructure but "to make an infrastructure operate efficiently requires knowledge of local practices that may differ radically from place to place. Organizational structures that facilitate the operation of physical capital in one setting may be counterproductive in another. Local knowledge is essential to building effective social capital" (Ostrom, 2000). The social capital of a group, place, etc., is not only constructed by its formal government, but also by many individuals in these more or less delimited networks. There is no legible decisionmaker that can form the social capital in the same way as it makes decisions on traditional capital.

2.4. *Rights of possession versus public goods*

Bourdieu's individual-related social capital can be put in the same category as human capital in many ways. It is a resource an individual or group possesses and may be regarded as productive in the sense that it helps to increase the individual's/group's well-being. Like human capital it cannot be disposed of entirely. It does differ from human capital in a crucial way, however, inasmuch as it is inherited chiefly by the social environment, whereas human capital is influenced by the supply of education. In this respect, Becker's social capital has similar characteristics as Bourdieu's.

On the other hand the Coleman perspective is that social capital is a public good for a group or for the whole of society. The economic effects of social interaction cannot be "internalized," i.e. ring-fenced by a firm or organization. The effects are therefore externalities (Collier, 1998). Whereas the other three forms of capital make possible an *individual right of possession*, this is not the case with social capital. Then what determines whether a given item of social capital is a good for a group or for the society at large?

Putnam's reply would probably be that it depends on how "civil" the society is. The greater the civility, the more public the society and the less the propensity (and opportunity) to monopolize goods within the group. Another way to say this might be that it is the part of social capital that is formed of horizontal links between groups at the same level and vertical links between those at different levels that determines how general the general good is (Flora, 1998). The establishment, extent and exploitation of these links is determined by the nodes, of course, i.e., by the intensity of the will to cooperate exhibited by the groups and levels. The connection is clear, however: the more cooperation between groups and between different levels of society, the more widely the general goods are disseminated. Burt (1992) is referring to this view when he asserts the importance of "structural holes," i.e. of links to groups that would not otherwise be coupled to the network. Granovetter (1982) has stressed that even weak external links to subgroups with strong internal links signify a good deal in terms of the cohesion of society.

If it is a certain type of social capital that decides the diffusion of public goods in a society, it is not far-fetched to aver that it is primarily this type of social capital that Putnam has in mind when he focuses on positive effects. The fact that the establishment of these important links is decided by the nodes also helps to explain the existence and retention of social capital that is negative and counterproductive from society's standpoint. If for diverse reasons groups do not wish to espouse a society's norms, they minimize the positive links to it but preserve and even strengthen the negative ones.

Just as we did above, here we can compare in network terms the internalizing efforts of an outgroup such as a semi-criminal youth gang with those of a firm. A firm has certain business secrets it endeavors to monopolize so they don't become public; its success depends on this information not becoming public goods. Strong internal links are created in order to preserve it, while external links in this area are punished – even though, from society's standpoint, they might lead to generally positive developments such as diffusion of technology, increased competition, and lower prices. The youth gang bases its existence on being a group whose attitudes and actions diverge from those of society. The forging of over-positive links with the rest of society conflicts with the idea of

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

outsiderhood and would dissolve the social capital that unites the gang as a gang. Negative links to society, on the other hand, help to preserve and strengthen the internal social capital. In both cases, however, it remains true that the network cannot be totally screened off and the social capital totally internalized. This means that at least part of the capital becomes an externality in the form of public good or "bad."

Thus, even though an individual right of possession of social capital is impossible according to the Colemanesque approach we are using here, it is evident that the degree of "publicness" varies widely between different types of social capital, whether "good" or "bad." How "public" any particular social capital is will be determined, as in our earlier discussion of productivity, by that part of the social capital that forms external links between different groups and levels of society. A large quantity and proportion of positive links will make the social capital general and homogeneous. A larger proportion of negative links gives rise to heterogeneous social capital, fragmented into groups and "public" only within each group.

In other words there seems to be a strong coupling between social capital's character of public good and its productivity. In both cases it is the links between groups and levels of society that are crucial to how strong an influence the most productive social capital has at any given time.

2.5. *Complexity and level of aggregation*

The various forms of capital differ in their complexity. Financial capital is the most homogeneous and in principle differs only in being expressed in different currencies. Physical capital occurs in the form of land, tools, plant, machinery, etc. Differences between the types of physical capital are many and wide but there are also strong common denominators. Human capital displays very great complexity in that it cannot be considered entirely alike in any two individuals. In social interactions, every individual participates as actor in an endless variety of relations and networks, and there are probably not two individuals with exactly similar preferences. Therefore, *social capital must be regarded as the most diversified of capital forms.*

This raises great problems if we want to be able to operationalize and analyze social capital empirically. Solow asks, e.g., "Just of what is social capital a stock of? . . . What are those past investments in social capital? How could an accountant measure them and cumulate them in principle?" (2000, p. 7).

Rose (1998) considers that three different approaches can be distinguished for interpreting the complexity of social capital, which affects the possibilities for operationalizing it. One is Coleman's (1990, p. 302) view that social capital is an endogenous phenomenon in social relations that varies from one situation to another. Rose argues that this view means that since both networks and individuals shift from one situation to another, social capital cannot be aggregated to form a single unity. A second view is Ingelhart's (1997, p. 188), that networks are a consequence of people's having trust in each other and so cooperating with each other. Social capital can be described as a generalized consequence of this trust and cooperation. It is not the networks that vary from one situation to another but the adherence of individuals to the networks; certain individuals have more trust and cooperate more than others. Thus the source of social capital is an individual resource that is reflected in attitudes and is therefore capable of being measured. The third view is Fukuyama's (1995, pp. 26ff), that that society's culture is the source of trust and cooperation. Different societies have different social capital because they have different cultures. Individual access to social capital does not vary within cultures but between them.

To this we must add Becker's view that social capital is an individual asset that might produce different benefits for different people even from the same set of goods and services (Hardin, 1999).

The differences between the four approaches are largely a matter of level and aggregation. Becker's individual social capital is individual and thus impossible to aggregate, but the outcome of the use of this social capital should be possible to categorize. Coleman's micro approach emphasizes the differences between networks and between individuals but should of course make it possible to categorize them. Ingelhart's individual approach keeps the networks constant and enables individuals' trust to be measured. It is a condition,

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

however, that these individual values can be aggregated to become a value of the social capital at the macro level. Another prerequisite is that the culture is common and that networks are there if individuals want to connect with them. On the other hand Fukuyama's aggregated cultural approach holds the individuals constant while keeping the networks distinct. The variations between the social capital of individuals become marginal compared with the variations between cultures, and the focus of study is on comparing cultures.

A somewhat different way of tackling the problem of complexity is to distinguish between internal and external social capital, as was done in the previous sections. The next step is to establish that there are different levels of aggregation and that homogeneity of social capital stands in converse ratio to the level of aggregation. The approach is described from a spatial perspective in Figure 2, which also contains examples of commonly used terms for social capital on different levels as an illustration of the heterogeneity of the concept.

At the lowest level is the individual actor. By definition, each individual is a homogeneous unit

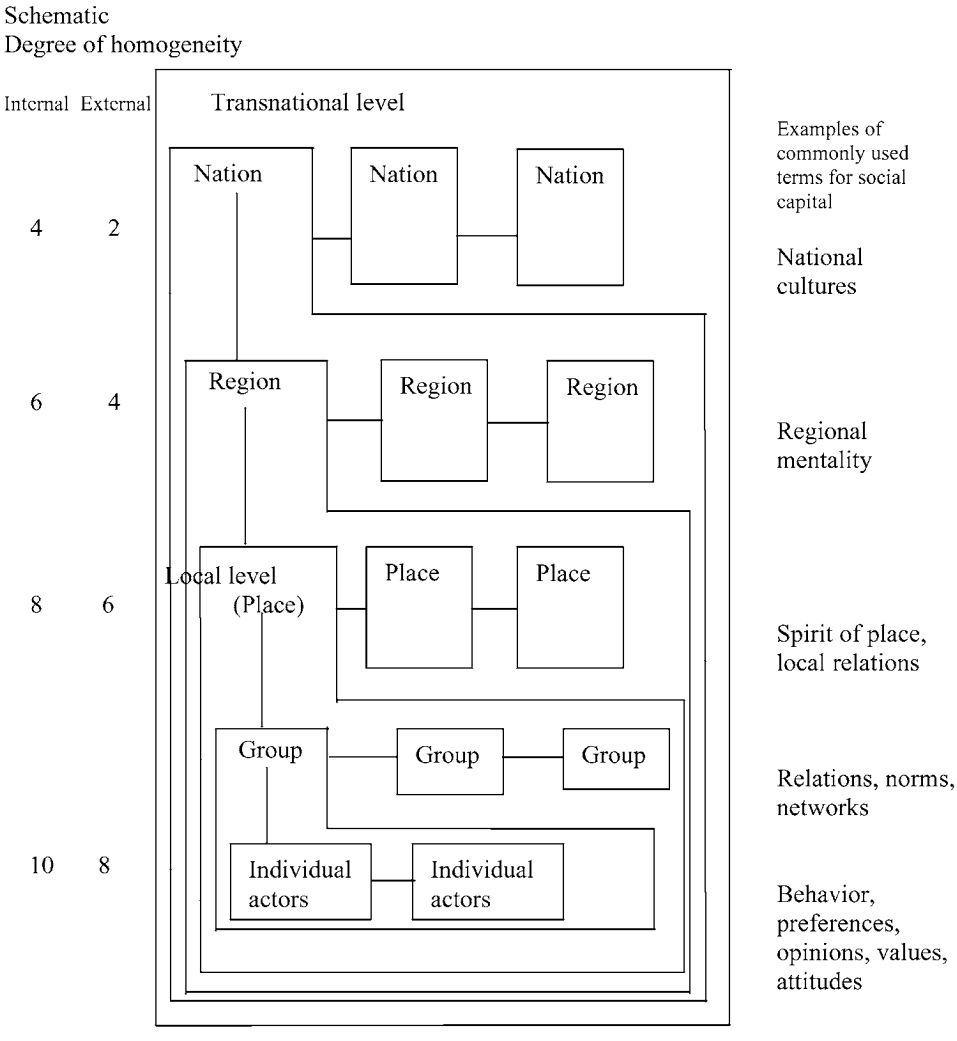

Figure 2. Levels of aggregation, degree of homogeneity, horizontal and vertical links between actors and levels, and examples of commonly used terms for social capital on different levels.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

(even if a psychologist perhaps would question such a statement) with his or her own preferences, attitudes, behavior, etc. But the individuals form only one of the two components, the nodes, of the networks we denominate social capital. The other component, the links, are of principally two different kinds: (a) horizontal links between the individual and other individuals in the network/group, and (b) vertical links between the individual and the network/group as a decision-maker of higher order (i.e., the relations between individuals are not the outcome of the single individual, but of all the individuals in a network/group. This is a crucial principal problem in measuring social capital and particularly in aggregating it to higher levels.)

The next lowest level is the local group of individuals, whose internal social capital has high homogeneity. These local groups are coupled to horizontal external links and collectively form a deposit of local, placebound social capital with a lower degree of homogeneity than that of each group. In contrast to a group, a place cannot be considered to be a decision-maker, but still the social networks of a place form opportunities and restrictions, affecting the decision-making of individual and groups.[7] The local groups and places also have vertical links to actors at regional level. Social capital at regional level is less homogeneous than at local level, and so on, and the social capitals on these levels constitute opportunities and restrictions, affecting decision-makers as well.

The fact that decision-makers, like individuals and groups, are nodes but not links is a principal general problem in measuring social capital. In practice, most empirical methods to measure different aspects of social capital must accept this shortcoming and build on data on the nodes, i.e., the links are measured indirectly by the nodes' access to, preferences on, use of, attitudes to, etc., different links.

The differences in homogeneity between social capital on different levels constitute the fundamental problem in aggregating social capital. Knowledge about links on one level does not necessarily reveal anything about links on a higher level. Information about links between two levels may not be valid at all for links between other levels. Glaeser, Laibson and Sacerdote (2000) recognize this when they point out that "the complexity of aggregation means that the determinants of social capital at the individual level may not always determine social capital at the society-level" (p. 5; cf. also Dasgupta, 2000).

Woolcock (1998) uses the terms "bonding" and "bridging" links for what we call internal and external links, respectively. However, he does not discuss the circumstance that bridging/external links between units (e.g., groups) on one level (place) simultaneously constitute bonding/internal links for that level in relation to a higher level (region). The fact that bridging/external links simultaneously from another perspective constitute bonding/internal links is another illustration of problems of aggregating social capital of different layers.

Thus, the crucial factor from the homogeneity point of view is the external links between actors on and between the respective levels. In those instances where local actors have weak or negative links between them, for example between different firms or residential districts, the local social capital will be less strong and homogeneous. In cases where weak/negative links only cover marginal groups, however, the effect on local social capital is also marginal. Similar reasoning applies to the links between different levels. For example, Rose (1998) describes Russia's current problems in this respect as over-strong networks within small groups (family, neighbors, etc.) that function as compensation for the absence of positive links between these small fragmented networks and society at large.

While lack of (positive) links or the presence of negative links between actors and levels constitutes one extreme problem, the other extreme consists of over-strong links that resist necessary change. History shows many examples of countries and regions that have not managed to adapt themselves to changing norms and values when economic conditions changed.

Thus, over-weak links create a heterogeneity that risks ending up as disintegration, while over-strong links create a homogeneity that generates inflexibility and resistance to change (Grabher, 1993; Grabher and Stark, 1997). Theoretically speaking there is probably an optimal balance between homogeneous and heterogeneous social capital at and between each level (Westlund,

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

1999). Woolcock (1998) has discussed this central question in terms of "embeddedness" and "autonomy" respectively (Granovetter, 1985), where embeddedness (in our terms) refers to the links that help to make the group/society homogeneous while autonomy refers to links that preserve the group's/society's heterogeneity and diversification.

The conclusion from Figure 2 is that social capital and its effects, for example in the form of entrepreneurship, ought to be studied in various ways at different levels. It is the type of links and their levels that determine how social capital is to be studied. However, attempts to aggregate links specific to different levels into a "general" level run up against great problems of principle. The common denominator of social capital must be sought at each level individually.

2.6. *Social capital as capital – Summary*

The discussion of this section on similarities and dissimilarities between social capital and the other capital forms is summarized in Figure 3.

Similarity	***Dissimilarity***
Productivity	
Social capital is sunk costs that might become obsolete.	
Social capital can be put to good or bad uses (from society's perspective).	Social capital expresses interests of actors, good or bad from society's perspective. It is not neutral with regard to society's interests.
Vintages	
Social capital consist of vintages.	The vintages of social capital are more comparable to a port wine than to other capital forms. The composition of vintages is decisive. There is no simple correlation between age and decreasing productivity.
Accumulation and maintenance	
Social capital is worn out if it is not maintained.	Social capital is a product of both intentional investments and an unintended by-product of other activities.
Social capital is a result of past activities.	Accumulation of social capital does not necessarily need deliberate sacrifices for future benefits.
	Social capital is harder to construct through external interventions
Rights of possession vs. public goods	
Access to social capital is never completely public. Access demands connection to a network and/or certain skills.	Social capital is *social,* i.e. it cannot be individually possessed.
Complexity and levels of aggregation	
Diversified social capital means less vulnerability to economic structural changes.	Social capital is the most diversified, least homogeneous form of capital.
	Aggregating social capital belonging to different levels meets great methodological difficulties.

Figure 3. A summary of similarities and dissimilarities between social capital and the other capital forms, concerning productivity, vintages, accumulation, possession and complexity.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

3. Social capital as generator of producer surplus

The various types of capital have very different types of effect. Homogeneous financial capital has an output which is also homogeneous, viz. more financial capital, which can be consumed or invested. The output of physical capital consists of products which are either consumed or invested as new physical capital. Human capital reproduces itself in similar fashion to the two capital types aforementioned, but the output of human capital extends much further than that. Neither financial, physical nor social capital can come into being and be accumulated without human capital. Therefore human capital contributes actively to investment in other forms of capital as it does to production for consumption.

What, then, is the output that social capital produces? From the Becker point of view, the effects of social capital "are more or less entirely within the actor" (Hardin, 1999, p. 179). But the welfare of actors of course also has external effects. Based on the Colemanesque perspective, Collier (1998) identifies three effects of social capital, all constituting externalities: Social capital consists of knowledge that is disseminated and exchanged in the social networks, thereby raising the level of human capital; it increases mutual trust between actors, thereby helping to reduce transaction costs; it increases capacity for common action. In social capital, norms and rules are created for the behavior of actors, reducing tendencies towards free-riding and the accompanying costs of formal systems of control and sanctions. An obvious addendum to these three points of course is that, as noted above, social capital also reproduces itself by virtue of the fact that its consumption normally constitutes an investment as well.

Two basic concepts in microeconomic theory are consumer surplus and producer surplus. Bolton (1999) has suggested that in a spatially limited perspective the two surpluses help to form a *place surplus*. In the paper cited, he concentrates on the relation between consumer surplus and place surplus. Here we highlight the other side, viz. the composition of producer surplus, the emphasis being on the role of social capital in creating producer surplus. We concentrate on that part of social capital that consists of links between actors and levels of society, since they may be regarded as the most important factors for a spatially limited social capital that contributes to place surplus.

Figure 4 provides an outline description of producer surplus as a function of the four types of capital. However, we confine ourselves here to discussing the influence of social capital. The figure shows social capital influences producer surplus in two ways. One occurs via its effect on supply costs and revenues (supply costs are defined here as the sum of transaction, transport, production, and development costs (Johansson and Westin, 1994)). The other occurs via its effect on human capital.

Social capital has direct effects on transaction costs. It affects information and its dissemination, and thus also information and search costs, and

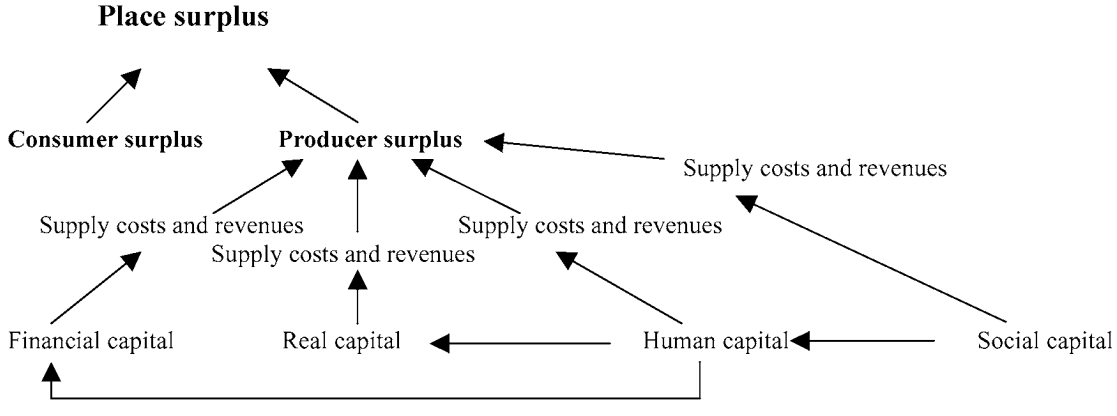

Figure 4. Schematic representation of the role of social capital in the production of place surplus.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

affects trust between actors and thus contract costs. It also affects the propensity to free-ride and thus the costs of control and sanctions. Thus, supply costs are influenced by social capital through the degree of trust and the climate of cooperation prevailing both in individual workplaces and between firms and actors in a region.

Social capital also influences producer surplus through its effect on human capital. Social capital can itself be described as a kind of knowledge, which is diffused and exchanged, thereby raising the level of human capital (Collier, 1998). These changes in human capital can affect, in principle, all the components of supply costs and revenues. Human capital in turn also has effects on real capital and financial capital, but we do not discuss them in detail.

4. Social capital, entrepreneurship and producer surplus

4.1. *Rereading Schumpeter*

We feel it desirable, even essential, to return to Schumpeter's classic work on entrepreneurship, *The Theory of Economic Development* (1934). Much of Schumpeter's thinking can be thought of as "received theory," and in a sense we return to him with a newer theory in hand – that of social capital – looking for connections with the received theory. In addition to the value of a search for such connections, the experience of reading his vigorous language is valuable in itself.

His subject is "that kind of change arising from within the system *which so displaces its equilibrium point that the new one cannot be reached from the old one by infinitesimal steps*. Add successively as many mail coaches as you please you will never get a railway thereby" (1934, p. 64, italics in original; all further quotes in this section are from this work and we cite only page numbers).

What is involved is a "new combination," which covers the following cases: introduction of a new good; introduction of a new method of production; the opening of a new market; the conquest of a new source of supply; the carrying out of the new organization of an industry (e.g. creation or destruction of a monopoly) (66). The new combination seldom is a response to a change in consumers' tastes: "the producer . . . as a rule initiates economic change, and consumers are educated by him if necessary; they are, as it were, taught to want new things. . . ." (65). And it is usually "embodied" in a new firm rather than an old one: "in general it is not the owner of stagecoaches who builds railways" (66).

"The carrying out of new combinations we call 'enterprise'; the individuals whose function it is to carry them out we call 'entrepreneurs'" (74). Schumpeter admits he has a narrow view of "entrepreneur" and admits the word often means something else in popular discussion and even in other economists' writings. The reason is that

> the entrepreneur's essential function must always appear mixed up with other kinds of activity, which as a rule must be much more conspicuous than the essential one. Hence the Marshallian definition of the entrepreneur, which simply treats the entrepreneurial function as 'management' in the widest meaning . . . does not bring out what we consider to be the salient point and the only one which specifically distinguishes entrepreneurial from other activities. . . . [One] is an entrepreneur only when he actually 'carries out new combinations,' and loses that character as soon as he has built up his business, when he settles down to running it as other people run their businesses. (77–8)

Not only are entrepreneurs different from managers and inventors, they are a special type:

> the carrying out of new combinations is a special function, and the privilege of a type of person who are much less numerous than all those who have the 'objective' possibility of doing it . . . entrepreneurs are a special type, and their behavior a special [theoretical] problem, the motive power of a great number of significant phenomena. (81–2)

At this point Schumpeter presses the point home, in a footnote added in the second edition (1926). He notes that the first edition of his book (1911) was "reproached with exaggerating and mistaking the peculiarity of this conduct and with overlooking the fact that it is more or less open to every businessman . . . ," then disagrees vigorously: "The conduct in question is peculiar in two ways. First because it is directed towards something different and signifies doing something different from other conduct. . . . Secondly, [it] presupposes aptitudes differing in kind and not only in degree from those of mere rational economic behavior". (81, note 2)[8] Earlier he had said: "If we choose to call the manager or owner of a business 'entrepreneur,' then he would be

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

[one] . . . without special function and without income of a special kind," citing a French phrase of Walras's (45–6).

Carrying out a new combination, on the other hand, is quite different: "Carrying out a new plan and acting according to a customary one are things as different as making a road and walking along it" (85). The "mental freedom" to plan a new combination "is something peculiar and by nature rare" (86). "Our type seeks out difficulties, changes in order to change, delights in ventures" (93–4).

Financing the new combination is a special problem. There must be a mechanism to "detach productive means (already employed somewhere) from the circular flow and allotting them to new combinations" (71). Individual possession of wealth is seldom adequate – or at least that is "the rule . . . [in] the fundamentally interesting case" (69). Furthermore, since new firms are usually involved, the new combination "cannot like an established business be financed by returns from previous production" (69). Schumpeter puts most emphasis on bank credit as the critical source of credit. The entrepreneur is one whose personality generally does not suggest "leadership" in the usual sense, and he does not succeed by convincing people his plan is good or creating confidence the way a politician would, rather "the only man he has to convince or to impress is the banker who is to finance him" (89). In another place he notes that it is a commonplace that "talent in economic life 'rides to success on its debts'" (70).

In this emphasis on bank credit Schumpeter of course seems very dated. He does mention at one point that if in fact we are not starting from a circular flow equilibrium then another source of finance is the profits from previous successful innovation – entrepreneurial profit (72). But it's a passing remark and he makes little of it. Nowadays of course we recognize not only the importance of equity finance but also that of a particular kind of social capital created by past entrepreneurs who stand ready to reinvest entrepreneurial profit in new entrepreneurial ventures.

Turning now to the most concrete reason for rereading Schumpeter, if the entrepreneur is so *different*, how relevant can be the social capital context? In a sense we are looking to see if our modern theory has "cogs to grip the wheels of received theory" (4), to use the very desideratum he said his own theory should have.

It turns out he has only a few remarks that are directly helpful, but they seem significant to us, and they support our own contention that social capital's role must be seen as ambiguous. First, we note he recognizes the importance of social norms in affecting individuals' routine behavior: "the field of individual choice is always, though in very different ways and to very different degrees, fenced in by social habits or conventions and the like" (91). Furthermore, a reason that entrepreneurial action is noteworthy is that:

> The very nature of fixed habits of thinking, their energy-saving function, is founded upon the fact that they have become subconscious, that they yield their results automatically and are proof against criticism and even against contradiction by individual facts. (86)

The language here – "energy-saving," "automatically" – actually reminds us of some of the modern descriptions of how social capital makes everyday life and social interaction more manageable for each person who has access to it. However, he says such fixed habits become "drag chains when they have outlived their usefulness" (86).

> In the breast of one who wishes to do something new, the forces of habit rise up and bear witness against the embryonic project. . . . [Then there is] the reaction of the social environment against one who wishes to do something new . . . any deviating conduct by a member of a social group is condemned, though in greatly varying degrees according as the social group is used to such conduct or not. . . . This opposition is stronger in primitive stages of culture than in others, but it is never absent. Even mere astonishment at the deviation, even merely noticing it, exercises a pressure on the individual. The manifestation of condemnation may even come to social ostracism and finally to physical prevention or to direct attack. . . . Surmounting this opposition is always a special kind of task which does not exist in the customary course of life, a task which also requires a special kind of conduct. (86–7; Schumpeter made similar comments in *Capitalism, Socialism, and Democracy* (1950, p. 132))

Of course we wish that Schumpeter had elaborated greatly what we might call the "drag chains of social capital," and we also wish that he had elaborated the crucial phrase "though in greatly varying degrees according as the social group is used to such conduct or not. . . ." But much of his language is terse and he often lets a few words

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

speak volumes. We believe that this is one of those cases.

While we rest content with the laconic reference to social capital's inhibiting effect, we believe that in some other passages Schumpeter missed a logical implication of it, namely in his discussion of the *risk* of entrepreneurship. He argues that risk never falls on the entrepreneur *per se*, only on the owner of the means of production or the provider of the money-capital that paid for them. He admits it's possible the same person who is the entrepreneur is also the provider of capital, but he insists on a methodological distinction, standard in economics, between the two functions (75, 137). "Risk-taking is in no case an element of the entrepreneurial function" (137). We think that here Schumpeter missed an obvious implication of his comments on social disapproval of entrepreneurial action. Surely it is a direct psychological "hit" when a person risks social disapproval and then suffers such disapproval because his or her entrepreneurial effort failed. No methodological straining can separate the person who suffers the psychological effects from the one who tried a new combination. Revealingly, Schumpeter's very next sentence is: "Even though he may risk his *reputation*, the direct economic responsibility of failure never falls on him" (137, italics added). How can one's reputation not be part of his economic welfare, or losing it not be the bearing of economic responsibility of failure?

Schumpeter might have linked the idea of risk of losing reputation with his notion that social condemnation comes "in greatly varying degrees according as the social group is used to such conduct or not. . . ." We believe that in some communities the "culture" is such that entrepreneurs are insured against loss of reputation; these communities ensure that failed entrepreneurs continue to have access to social capital even if their daring behavior fails.

Schumpeter also seems dated now because he neglects what we might call "collective entrepreneurship," an idea advanced in one way or another by Johannisson (2000), Saxenian (1994), Markusen (1996), and many others. They suggest that regions have a "personality" that is the combined result of individual personalities, social and business interactions and networks, institutions, market structures, and, frankly, accident. Johannisson says that "multiple interpersonal dialogue, or 'polylogue'" is a key to establishing a new venture (2000, p. 5). Personal networking by the entrepreneur obviously is involved, and Johannisson makes the interesting claim that personal networking is actually "congruent with a presumed strong need for independence among entrepreneurs. . . . [network ties create dependence, but] since this dependence (and network) is, as much as the venture itself, created by the entrepreneur her-/himself, it is not perceived as a straitjacket" (*Ibid.*).

The network ties, interestingly, are not only vertical, as in hierarchies, and horizontal, as in alliances between competitors or between firms and customers, but also "lateral," to use Johannisson's terms (pp. 8–9; this trichotomy is implicit in many other studies). Lateral ties result when individuals in unrelated businesses interact with each others, and those individuals may be entrepreneurs, managers, or workers. Furthermore, lateral ties include interactions between business people and people outside of business, such as public officials and media personnel. Silicon Valley is considered a noteworthy example. Schumpeter did not anticipate Silicon Valley as a generic or as a specific type.

4.2. *Region-bound social capital and entrepreneurship*

It may be useful to supplement the Schumpeterian perspective by bringing in Knight's (1921) emphasis on risktaking as a quality of the entrepreneur and synthesizing the Schumpeter-Knight insight into a definition of entrepreneurship as *the ability to create new combinations of production factors through experimentation and risktaking*. This definition is based on the traditional way of regarding entrepreneurship as being an individual attribute. However, in modern entrepreneurship research, in increasing degree entrepreneurship has been considered as a result of interaction, as a social, a *collective* phenomenon based on mutual trust and obligations. In this perspective, Marshall's industrial districts becomes "a qualified case of collective entrepreneurship," a "self-organizing system" (Johannisson, 2000, p. 6).

According to such an approach, entrepreneurship becomes as much a creator of social capital

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

as a result of it. Figure 4 shows these relationships between social capital, entrepreneurship, and producer surplus. In line with the discussion in Sections 1 and 2, social capital has two fundamental components, resources and preferences. The figure also shows three types of social capital, Entrepreneurial-Facilitating Social Capital (EFSC), Entrepreneurial-Inhibiting Social Capital (EISC), and Social Capital not directly coupled to entrepreneurship, each of them consisting of resources and preferences. Thus, "negative," entrepreneurship-inhibiting social capital is included as a subset of total social capital.

In the figure, positive capital heavily outweighs the other items, which illustrates the fact that social capital corresponds in the main to society's interests at the relevant point in time. The larger the proportion of positive social capital, the greater its positive effect on supply costs and entrepreneurship is presumed to be. On the other hand, the larger the share of the "negative" element in total social capital, the more negative its effects on those will be.

We discussed the effects of social capital on supply costs in Section 3. Generally speaking, lowered supply costs have a positive effect on entrepreneurship because they signify lowered costs of experimentation and risktaking as well. The open, innovative spirit that Marshall described expresses low (economic and social) costs of its activities. Human capital, being also affected by social capital, plays an important role here as well.

Figure 5 therefore has several new links between social capital and producer surplus. First, it has direct effects on entrepreneurship. Both as an individual and a collective resource, social capital enables or disables entrepreneurial activities. Correspondingly, an individual's preferences govern to what extent he/she undertakes entrepreneurial actions. Second, social capital affects entrepreneurship through its influence on supply costs, not only directly but also indirectly via human capital. Then, entrepreneurship influences innovative ability, which influences revenues, which have effects on producer surplus. At all these stages there is strong feedback not shown in the figure. Innovative ability naturally has repercussions on future supply costs, entrepreneurship, and human capital. Revenues provide possibilities of investing in new financial, real, and human capital, which will change future supply costs. Revenues can also be assumed to have effects on future entrepreneurship etc. Producer surplus can be expected to have positive effects over the entire region. Moreover, there are of course impacts between different stages apart from the entrepreneurship; supply costs have a direct impact on the producer surplus, etc.

The approach taken in Section 2, whereby the relationship between positive and "negative" social capital in the form of competing networks was described, has obvious relevance here. Risktaking and experimentation involve both building on and breaking with prevailing norms and conventional wisdom, i.e. the existing social capital. This is nothing but Schumpeter's well-known "creative destruction" (cf. also Fukuyama, 1995). Expressed in network terms it means that the entrepreneur reshapes the networks by simultaneously (a) utilizing certain links of an existing network, (b) abolishing other links to certain nodes of the network, and (c) establishing new links to new nodes. The relationship between the three processes varies from case to case. The entrepreneur's ability to reshape or even defeat existing networks is of course affected by the costs entailed in doing so (supply costs) and by the knowledge and skill of the entrepreneur (human capital). Whether this ability is "in the air," as Marshall put it, or concealed deep underground is determined by the social capital in existence.

To what extent, then, can entrepreneurship be led upwards from the "underground" into the "air," and how can it be induced to stay there despite changes in the economy? One perspective which is virtually deterministic in all but the very long term has been adopted by North (1990), who discusses the influence of cultural heritage and development paths on economic growth in different nations and cultures. As noticed in Section 3, Fukuyama's view has great resemblances with North's. In a shorter – and spatially more limited – perspective, Krugman (1991), Markusen (1996) and others have discussed the capacity for growth of certain industrial districts.

One of Krugman's points is that regional specialization is "eternal" but that the successful regions shift. There are many examples of once-successful industrial regions that have failed to change in step with changes in the economy. Even

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

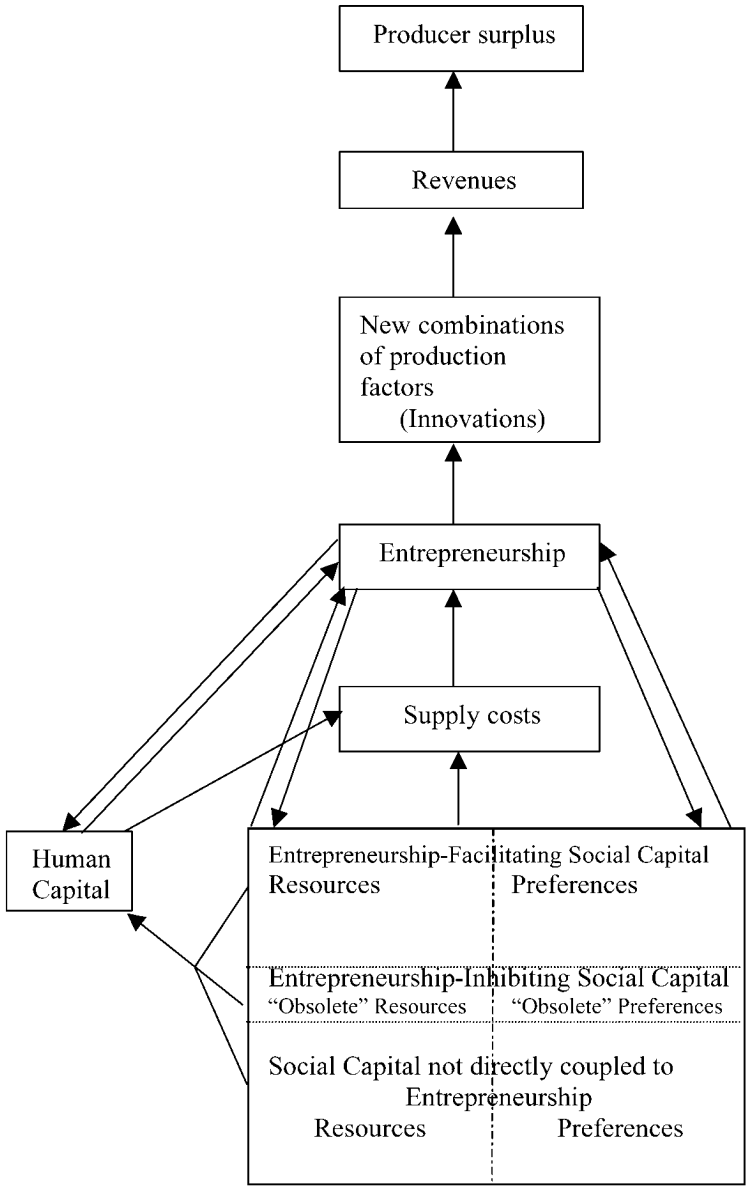

Figure 5. Effect of social capital on entrepreneurship and producer surplus.

though their problems lie several levels below North's macro-orientated, trackbound development paths, they obviously have an excess of old and unproductive social capital alongside a shortage of the new and productive kind. The unproductive social capital of these regions consists of norms, values, knowledge, and preferences which once underpinned the growth of the old industrial structure but today find themselves in conflict with the production structure existing and growing elsewhere. Grabher (1993) takes the Ruhr Area as an example of such lock-ins of a region. Another example, in smaller scale, is the Lolland region in Denmark, where entrepreneurship is inhibited by traditional life-modes of wage workers and self-employed, exporting farmers (Hjalager, 1989). As we observed above, similar examples of unproductive/counterproductive

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

social capital are also to be found in enclaves as ghettos and mafia cultures, and in social capital that was established during the age of agrarian societies but has been preserved among certain actors and groups.

Markusen (1996) distinguishes four types of industrial district of which the Marshallian is the one that in our terminology has the strongest positive social capital. What is interesting in this connection is her example of Detroit's transformation from a Marshallian district with a wide diversity of actors to a "hub-and-spoke district" in which far and away the dominant actor was the car industry. "The third Italy" has been particularly singled out as the foremost example of an agglomeration of Marshallian districts featuring small-scale, flexible specialization (Sabel and Piore, 1984). However, Fukuyama (1995) holds that the existing social capital in the third Italy confines activity to small-scale sectors and that problems of adaptation to economic change can therefore arise even there.

4.3. *Social capital in interfirm relations*

A striking development in recent research is the discussion of social capital in interfirm relations, especially relations between firms and their suppliers. The work has been done by business economists and by sociologists studying business. It is relevant for a consideration of social capital generallly and also a consideration of the factors in entrepreneurial success more specifically.

Sako's (1992) analysis of trust in interfirm relations in British and Japanese electronics firms is a classic statement of the elements that we would include in social capital, though she does not use that phrase. Mutual trust is necessary if firms and their suppliers are to demand and give flexible responses to each other. She hypothesizes two kinds of contractual relations, Arm's Length Relation (ACR) and Obligational Contractual Relation (OCR), which are not a dichotomy but ends of a spectrum. An ACR is an explicit written contract that spells out many contingencies before exchange begins and has a fixed period, at the end of which "exit" is easy; reciprocity must occur within the time period of the contract and is governed by detailed specifications. An OCR is a relation that encourages transactions to begin without writing down all the conditions and encourages parties to do more than expected and to refrain from exploiting the partner's vulnerability; a firm may expect reciprocity only over a long period of time. OCR's lead firms to make relationship-specific investments – often called "dedicated assets" in the management literature – and thus create high and prolonged interdependence, not easy to exit from; firms resolve contingencies on a case-by-case basis with appeal to fairness, social norms, and "the diffuse obligation of long-term relationships" (p. 11), and they forgo opportunistic behavior.

Dyer (1994, 1996, 2000) has analyzed extensively aspects of trust in Japanese and U.S. auto manufacturing, and makes many of the same points as Sako does on selection of suppliers, transaction costs, sharing of knowledge, norms of fairness, and dedicated assets. He distinguishes "arm's length approaches" and "partner approaches" (2000, p. 118). In discussing dedicated assets, Dyer emphasizes that they include human capital assets as well as plant and equipment, in the sense that suppliers' engineers spend time in customers' facilities. Trust and asset dedication mutually reinforce each other (1994, 2000, ch. 2). Fruin (1992, 1997) also describes the importance of supplier networks and relationship-specific assets, in the context of a Toshiba production complex (1997, ch. 4) and in the context of the Toyota firm (1992, ch. 7), and he even uses the revealing phrase, "The Purchasing Department as Entrepreneur" (1997, p. 101). Nishiguchi (1994) is another detailed source. Okamuro (2001) in a very recent empirical study showed that Japanese carmakers, especially Toyota, absorb some of the risk of the suppliers that are very dependent on them, even though the supplier system has been undergoing some change. The literature on supplier networks is very large; we necessarily must be selective in citing sources.

Sako (1992, p. 22) notes the applicability of Albert Hirschman's exit-voice spectrum to her own ACR-OCR spectrum. Helper (1993) also uses Hirschman's spectrum to analyze supplier relations in the auto industry, noting that for several decades U.S. auto assembly firms opted for a strategy of exit or threat of exit in dealing with suppliers, and also noted that exit and voice represent different combinations of commitment

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

and information exchange, exit being relatively low in both and voice relatively high in both.

For Sako, ACR and OCR are two extreme points, and customer-supplier relations in practice are mixtures of ACR elements and OCR elements. For example, the ACR end is characterized by narrow channels of communication and little sharing of risk; the OCR end by multiple channels of frequent interaction between employees of the two firms, sometimes including socializing outside of work, and sharing of risk in the sense implied by a case-by-case resolution of unforeseen events (Sako, 1992, p. 12). Sako helps clarify the mixture by also hypothesizing three kinds of trust: "contractual trust," which is trust that contracts will be fulfilled; "competence trust," which is trust in a partner's competence; and "goodwill trust," which is trust that the partner is morally committed to maintaining the trading relationship (pp. 36–40). The first two are what economists probably have in mind when referring to a firm's general "reputation." Those two are necessary for both ACR's and OCR's, but goodwill trust exists only in an OCR, and it is Sako's goodwill trust that most scholars have in mind when they discuss "trust." (Sako and Helper, 1998, point out that contractual trust is necessarily limited, because contracts seldom can foresee every contingency, and thus leave one partner subject to exploitation when it is vulnerable (p. 392).) Sako concluded that the latter two kinds of trust were much more lacking in Britain than in Japan (1992, p. 244); later her extensive empirical analysis, with Helper, of supplier relationships in automobile manufacturing found that trust in general is more prevalent in the Japanese industry than in the U.S. one, even after controlling for certain industry characteristics that would lead to greater trust in both countries (Sako and Helper, 1998).

A relationship of goodwill trust requires extensive *investment* in the relationship and thus represents *capital*, and the discussion of interfirm relationships by scholars of business management reminds one strongly of other scholars' discussion of social capital, though the former tend not to use the phrase "social capital." In fact, for a large firm that is the customer, the investment in trust may accomplish some of the same objectives as equity investment in the supplier, although trust seems to operate as an additional force even if there *is* an equity investment (Sako and Helper, 1998, pp. 389, 406; Dyer, 2000, p. 88). Firms expect the investment in trust to pay off in reduced search and transactions costs and reduced risk later. The relationship, while the initial result of interpersonal contacts, survives the departure of the people who initiated it (Sako and Helper, 1998, p. 389). Trust is more likely when suppliers contribute to design of the components they produce and when both parties invest in assets specific to the relationship, but Sako and Dyer both take pains to emphasize that trust, suppliers' role in design, and asset specificity are all determined simultaneously with each other and none is exogenous (Sako, 1992, p. 19; Dyer, 1994, 2000, ch. 2).

It is fundamental for Sako and many other writers that the occurrence of trust is not solely cultural. Shared values are necessary, so culture may play a role; Sako notes that "the willingness to be indebted to someone and to recognize high mutual dependence in action appears to come about more easily in less individualistic Japan than in Britain" (1992, p. 24). But much more than culture is necessary; also important are the technical nature of the goods and services being exchanged, government policies and legal frameworks, the rate and stability of growth in demand, corporate strategy, the sources of finance, and the frequency of changes in ownership. Although Campbell (1995) points out that Japanese managers have some cultural advantage because they see human relationships as more important than material goods or abstract principles, and thus design their engineering and management practices accordingly, non-Japanese managers can learn to use similar practices effectively. Indeed, research in the 1990s showed that U.S. manufacturers, especially in the auto industry, have also been developing Japanese-style relationships with suppliers (Helper and Sako, 1995; Dyer, 1996, 2000, chs. 5–6, based on an extensive case study of Chrysler Corporation). It's also significant that Japanese automakers and U.S. suppliers to them have been able to develop trust (Sako and Helper, 1998; Dyer 2000, ch. 4). Nischiguchi also points out that the Japanese did not have similar subcontracting systems early in the 20th century, and finds his research supports the claim that the practices do "not necessarily [stem from] the economic agents' cultural attributes" (1994, p. 49).

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Liker et al. (1995) shed considerable light on the culture question. First, they state a common theme in saying the trust is not simply blind faith and mutual loyalty, rather it is a relationship of mutual dependence built up by each side's relationship-specific investments, which are "deliberate, alert, and conscious move[s]" to bind the two sides together (1995, p. 188); "trust is a result of mutual dependence rather than a cause" (p. 185). Their discussion of "black box sourcing" vs. "built-to-print sourcing" is also very illuminating (pp. 152–154). "Black box sourcing" is how managers and business economists describe the practice of giving suppliers general specifications of a component and having them design the details, as opposed to "build-to-print," in which the buyer designs the component and provides detailed blueprints to suppliers (Fujimoto, 1999, ch. 5 has a very detailed description of the black-box system at Toyota). Successful black-box sourcing – the term is originally American, not Japanese – requires trust and mutual dependence, but it requires much more as well: giving suppliers portfolios of components to design and produce, which helps reduce suppliers' risk; clear and stable interface requirements; extensive sharing of information; early tests of prototypes; aggressive targets on cost reduction and prices, but a willingness to share risks and benefits of unexpected cost changes; and engineering and management practices that break a large system into relatively autonomous pieces – "self-contained chunks" (Liker et al., 1995, p. 162; similarly, Dyer refers to a "modularization" strategy (2000, pp. 171–175). These practices are not limited to firms in Japan or any other single country.

The character of employment relations *within* firms is also important. Sako argues that in Japan and the U.K. there is a close logical and historical parallel between customer-supplier relations and employment relations within firms (1992, ch. 9), and Dyer emphasizes that employment stability in both customer and supplier helps build trust relationships between the two (2000, pp. 105–106). Dore and Sako (1989) say that Japanese firms are "learning organizations" partly because of attitudes of community: "A lot depends on attitudes – the modest acceptance that everyone has much to learn, the acceptance by all supervisors that teaching is a part of every supervisory role. Those attitudes, in turn, are much dependent on the social characteristics of Japanese enterprises which, as compared with enterprises in Anglo-Saxon countries, are rather more like communities and rather less like markets . . . ." (1989, p. xix). Fruin (1992) also discusses what one might call social capital elements in the Japanese firm's employment relations, including ones contributed by the enterprise union; he says, for example, "a veritable partnership in goals, methods, and means has been negotiated and renegotiated . . . and this accomplishment has depended on contributions and initiatives from both labor and management. . . . Reciprocity hinges on balance, equity, and fair recognition; these can be encouraged and enhanced but they cannot be mandated or legislated . . . the post-war environment of industrial relations has evolved in the direction of a kind of organic solidarity between labor and management. Interdependencies bind the two" (1992, pp. 174–175).

And, interestingly, another relevant aspect of employment relations is something related to entrepreneurship, namely the degree to which employees of large firms become entrepreneurs who then sell to their former employer. Sako, for example, found that large firms in Japan encouraged such spinoffs much more than they did in the U.K. (Sako, 1992, pp. 214–215). Here, as elsewhere, neither the goodwill trust relationship nor the nature of entrepreneurship is totally exogenous: each encourages the other. We know from a variety of research that coworker ties are important in stimulating and sustaining people who start new businesses, such ties being stronger forces than kinship ties, for example (Renzulli, Aldrich and Moody, 2000). However, Sako explicitly refrains from theorizing the effect on contractual relations of larger-scale, Schumpeterian entrepreneurship (1992, p. 255).

4.4. *Entrepreneurship-inhibiting and facilitating social capital*

There is much in the literature on inhibitions to entrepreneurship coming from community forces of the kind we could characterize as social capital influences. In the economic history literature, two classic studies of restraints on entrepreneurship in France in long periods of history are Landes

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

(1949) and Sawyer (1952). Both Landes and Sawyer emphasized close ties in conservative families that were unusually prominent in business, which reinforced other characteristics of the French social system. Sawyer noted the "carry-over of inherited family patterns into the important part of French business that has become identified with particular families. . . ." (p. 17), and he said, "Most conspicuous, perhaps, has been the relative absence of the kind of aggressive entrepreneurship requisite to the [Schumpeterian] process of 'creative destruction' . . . social and economic institutions have favored the preservation of the 'community' of producers or sellers. . . . Quite apart from the subtler social pressures more generally operative, conspicuous rebels . . . have found themselves destroyed by the economic community for trying to break the system" (p. 18).

While the French example illustrates our general point, we recognize that it shows merely one possibility. In some other countries, close-knit families or small groups have supported entrepreneurial innovation. Lamb (1952), writing at the same time as Sawyer, noted that "Entrepreneurs . . . depend for their success on the measure of acceptance their values and goals of activity command from [society]. . . . They tend to act in small groups, and to work out their value systems in such groups as family of clique," but then he showed several men in the early period of the U.S. as examples of how extended family and clique had dramatically supported entrepreneurship (1952, p. 116).

An often-cited empirical study of the interaction between entrepreneurs' motivations and the characteristics of their socioeconomic environment is Dubini (1989). Her study of Italian firms is noteworthy for two reasons: 1. She focused more narrowly on entrepreneurial *firms* than on self-employment and small business proprietorships in general, limiting her sample to firms "established for the principal purpose of profit and growth" (p. 15) and excluding farmers, craftsmen, and professionals; 2. She advanced the notion of sparse vs. munificent environments. A sparse environment lacks an "entrepreneurial culture and values, networks, special organizations or activities aimed at new companies . . . a tradition of entrepreneurship and family business . . . innovative industries" (p. 14), and it has weak infrastructures and capital markets. A munificent environment, on the other hand, has "family businesses and role models, a diversified economy . . . rich infrastructure and . . . skilled resources, a solid financial community, [and] government incentives to start a new business" (p. 14).

Dubini does not use the term "social capital," but we imagine that is due only to the timing of her study. One can argue the elements of social capital are implicit in the notion of the munificent environment, as suggested by the mention of networks and family businesses, and Dubini notes that access to other entrepreneurs is a positive factor in how the firms in her sample rated the environment (p. 21). An interesting finding is that entrepreneurs often had a goal of contributing to the welfare of their community as well as their own income and satisfaction (p. 18).

Kilkenny et al. (1999) has in an empirical test shown the significance of reciprocated community support in the success of over 800 small businesses in small towns of Iowa. Using logistic regression, they found that the interaction effect of an entrepreneur's service to the community, reciprocated by community support of the business, was the single most significant determinant of business success among dozens of indicators and characteristics of the managers, the businesses, and the communities.

Schell's (1983) study of three North Carolina counties uncovered some qualitative evidence that a certain social and political climate promoted by a region's "power elite" could foster or inhibit entrepreneurship (see also Schell and Davig, 1981). He put particular weight on whether the major community leaders themselves had personal attitudes similar to those of business entrepreneurs. The qualitative evidence consisted of informed comments in the press and people interviewed, but the quantitative measure of entrepreneurial activity was by Schell's own admission a very unsatisfactory one, namely the percent growth in number of incorporated businesses between1966 and 1976. In the county that lagged by this measure, there was general agreement that the elite was dominated by executives of large established corporations or old established families, and Schell's interviews of entrepreneurs revealed "no active linkage between [them] and

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

the power elite; in fact, the relationship bordered on alienation" (p. 504).

Several recent scholars have made more comprehensive and direct statements about possible inhibiting forces from excessive links and tight community bonds. Triglia (1986, 1991) noted that in parts of Italy local entrepreneurs had a limited geographical scope in their vision. Indeed, they were suspicious of efforts to think beyond the local scale because they saw their local networks as buffers against market forces and the power of the national state. Triglia emphasized the implications for social efficiency, in that local networks did not have the capacity to produce important collective goods, but we add that the limited vision of individuals may be seen as an example of excessive links or Schumpeter's dragchains.

Crouch, Finegold, and Sako (1999), referring to Triglia's arguments, elaborate: strong trust in "purely interpersonal terms can inhibit the development of arrangements for institutionalized trust . . . [which exists] where A is willing to trust B, not because he has personal, community knowledge of B . . . but because B is a representative of an institution . . . which A has learned to regard as trustworthy. Communities which rely very heavily on personal trust may find it difficult to make the transition to institutionalized trust. One consequence of this will be that they find it hard to have extensive dealings outside their immediate circle, which limits the size and scope of their activities" (1999, p. 168). It is interesting that Crouch, Finegold, and Sako make this statement in a chapter on "local agencies for skill creation," and we may regard skill creation as a kind of public entrepreneurial effort.

In a very pointed statement Grabher (1993) refers explicitly to the "weakness of strong ties" in warning of the dangers of dense and close networks, based on his provocative analysis of the decline of the coal, iron, and steel complex in the Ruhr region in the 1970s and 1980s. Grabher notes that in the Ruhr firms became too dependent on each other and not enough on information and perspective from outside, so that the area's close interfirm linkages, and also public-private linkages, "turned into stubborn obstacles to innovation" and "locked-in" the area's development to technologies and industries with unfavorable long-term prospects (p. 256). The attitudes were of course aggravated by the region's overspecialization.

Grabher's title phrase is evocative: "the weakness of strong ties." It is of course a twist on Granovetter's famous "strength of weak ties" (1973). The Ruhr, Grabher argues, suffered from the very strategies to foster cooperation and reduce transactions cost that earlier had been keys to its success. Its *adaptation* actually endangered its *adaptability*. Adaptation took the form of investment, which proved too high *ex post*, in transaction-specific assets and relationships, and also actually took the form of *continued innovation*, but it was innovation in the wrong technologies and wrong industries. A "cognitive lock-in" aggravated the inability to escape established modes of thinking and of cooperation; firms had not invested enough in what Grabher calls "boundary spanning" functions (pp. 261, 263), or in "redundancy," which is "the availability of unspecific and uncommitted capacities that can be put to a variety of unforeseeable uses . . . [which] enables social systems not just to adapt to specific environmental changes but to question the appropriateness of adaptation" (p. 265).

Finally, it goes without saying that in some cultures social capital reinforces general cultural forces that inhibit entrepreneurship by women.

What are then the characteristics of regions that succeed in reshaping their social capital in step with economic change? The answer is probably a more diversified social capital in which new growth and the closure of individual actor-networks is continually going on. This implies social capital that is fairly heterogeneous but at the same time has a sufficiency of links between the various actors' and groups' own networks not to collapse into numerous competing funds of social capital at regional level (Grabher and Stark, 1997).

Social capital that has been adapted to a particular production structure in a region is of great importance to that region's growth and horizontal and vertical integration. But such social capital also helps to prevent the emergence of new entrepreneurs with competing networks associated with other kinds of production. For entrepreneurship, in Schumpeter's sense, not to be confined to a brief period of innovation followed by a long non-entrepreneurial period of adaptation and increasing efficiency, the social capital needs to possess

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

special characteristics. Among the most vital characteristics of region-bound social capital that can encourage entrepreneurship, therefore, are *diversification and the ability to reorganize*.

A prerequisite is probably *a balance between the interests of the different nodes involved*, i.e., the interests of no single actor/group should be dominant. Furthermore an optimal balance has to be dynamic, based on the principle that *the vintages of social capital are renewed* by replacing old unproductive networks with new ones and keeping old productive ones in good repair. This means there is a requirement for an *optimal combination of both strong, longlasting links and weak, temporary ones* between actors (Hansen, 1998). It also involves *an optimal balance*, from the actor's perspective, *between internal and external links*, which can be described from society's perspective as an optimal balance *between homogeneous and heterogeneous elements* of social capital (Westlund, 1999).

5. Theoretical models in economics

The literature on "allocation of talent" reminds us that modeling entrepreneurship is a special case of a more general theoretical problem of modeling the choice between wage employment and self employment, often called "occupational choice" (Lucas (1978); Kihlstrom and Laffont (1979); Evans and Jovanovic (1989); Baumol (1990); Holmes and Schmitz (1990); Murphy, Shleifer, and Vishny (1991), to mention only a few items in what is a very large literature). Many models are models of "self-employment" defined very broadly – including professional practice or routine retail trade, for example – rather than entrepreneurship in the sense we are discussing. In empirical research, a broader definition is often required because data on self-employment are far more available than true entrepreneurship. In this literature, there is often no sharp distinction between people with "entrepreneurial vision" and those without it; any member of the population can become an entrepreneur. In models that do focus on entrepreneurship in a narrower sense, individuals differ in entrepreneurial ability and perhaps in preferences on risk and/or on nonpecuniary benefits and costs. However, when research is inspired by a particular set of data, a researcher may ignore nonpecuniary income simply because there are no good proxies for it in the data. In principle, nonpecuniary income is extremely important, not only for reasons suggested by Schumpeter but also because an entrepreneur is likely to have less leisure than a wage worker, so there can be negative as well as positive components to nonpecuniary income. Finally, we note that many models in this tradition do not model financing constraints on entrepreneurs, but some do.

We can convey some idea of the variety of approaches by noting the following: Lucas (1978), Kihlstrom and Laffont (1979), Baumol (1990), Holmes and Schmitz (1990), and Murphy, Shleifer and Vishny (1991), include neither financing constraints nor nonpecuniary income. Evans and Jovanovic (1989) and Holtz-Eakin et al. (1994a, b) have financial constraints on the amount an entrepreneur may borrow, but not on who becomes an entrepreneur in the first place, and do not include nonpecuniary income. Of course, if financial constraints affect the amount of income one can earn that may have an indirect effect on the choice to become an entrepreneur. The series of optimal taxation models in Boadway et al. (1991) have nonpecuniary income as a critically important variable, but not financing restrictions; in Boadway et al. (1998), anyone can become an entrepreneur but lenders charge different interest rates to different entrepreneurs, and there is no nonpecuniary income. Taylor (1998) has both credit constraints and nonpecuniary income; Taylor (1996) does not have such variables in the theoretical model, but includes (very imperfect) proxies for them as individual characteristics that, along with income differentials, predict the choice of self-employment.

This valuable literature focuses on topics like existence and efficiency of general equilibrium, aggregate growth, entry and exit of firms, and size distribution of firms. However, in our judgement a model that best allows for the incorporation of social capital is one that starts with the notions that relatively few persons have the entrepreneurial mindset, they have specific "projects" in mind, and they seek financing in an imperfect capital market. That approach might not model the selection of individuals – whether or not entrepreneurs are the most able persons in society – or the choice

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

of sector, and thus might be silent on whether entrepreneurship has social returns equal to private returns – whether it increases social productivity or is merely rent transferring. On the other hand, unlike most models on allocation of talent, the approach would pay more attention to nonpecuniary income of the entrepreneur and to financing, which are important in an analytical approach inspired by Schumpeter.

A model that does pay great attention to both those features is one by Blanchflower and Oswald (1998, hereafter B-O). In this section we present a model based very closely on theirs, then indicate how one might modify it to reflect social capital. The model is essentially theirs, but with some changes, up to the point where we introduce social capital; in the following we will indicate parenthetically how we depart from them up to that point. We have also added in an appendix some numerical examples, using CES utility functions, to illustrate the various interdependencies in the model.

The basic model. Initially, a locality has working population of size N, and no one thinks of entrepreneurship. Then, a fraction β of the population become "visionary," in the sense of having vision or foresight and not in the sense of being a daydreamer or a utopian (B-O used the term "intrinsically entrepreneurial," defined as having "the vision to see a range of feasible business projects" (p. 30)). Following Schumpeter, one expects β to be quite small. Each visionary estimates with great confidence the profitability of one or more potential projects, but others in society – in particular, bankers – cannot describe the opportunities by a probability distribution, though they do know the capital costs of each project. Thus there is an important asymmetry of information, where "information" includes confidence of profitability. The projects require different amounts of capital, k, but each requires exactly one entrepreneur's personal involvement (a very standard assumption in the literature). We use "project" to mean a potential project, "launch" to mean an actual investment, and "entrepreneur" to mean a visionary who actually launches a project ("launch" is our own term, not B-O's).

Visionaries are so confident of their projects that they ignore risk. This confidence is a notable feature of the model. Knight noted that "confidence and venturesomeness . . . act along parallel lines and are little more than phases of the same faculty. . . ." (1921, p. 270). Manove and Padilla (1999) discuss at length the likelihood of entrepreneurial optimism, noting that overoptimistic expectations is a widespread human trait, documented by cognitive psychologists' studies, and cite supporting literature. See also Taylor (1998) for an empirical discussion of optimism among budding entrepreneurs.

Each project has an expected profit, measured before payment of interest on debt, according to a strictly increasing function:

$$\pi = \pi(k), \quad \text{where } \pi'(k) > 0. \tag{1}$$

Any entrepreneur who launches a project will have to employ labor beyond his or her own, so launches will raise labor demand and increase the working population (here we depart from B-O, who specify a fixed population and assume that a project employs no labor other than the entrepreneur's own). Wage rates might be exogenous, if the locality is small and faces a perfectly elastic labor supply due to migration. If wages are endogenous, then of course π is a function of wages as well. More on this below, when we consider the labor market. For the moment, assume each project is conceived as a package of some optimal amount of capital, which is k, and some optimal units of labor and any other variable inputs.

In equilibrium, the "marginal launch" is the one with the lowest profits and thus the lowest k of all the launches. Denote its k as k^*. All projects having $k > k^*$ are launched, because they have higher profits, so visionaries will seek them eagerly because they are allocating the single fixed "person unit" they possess: competition by entrepreneurs for projects ensures that the projects with the highest profits per entrepreneurial unit are the ones that are launched. We assume each visionary looks at the whole array of projects, rather than having only one "pet project" at the start. This seems realistic, although it does mean there is no explicit apparatus to match particular launches with particular visionaries. Projects with $k < k^*$ are not launched, because none is attractive *simultaneously* to *both* a visionary and a financier. As we shall see, k^* is a crucial endogenous

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

variable, depending on the degree of entrepreneurial vision in the population (β), on visionaries' opportunity costs, and on the availability of financing.

Visionaries seek loans from banks and similar lenders. All loans are unsecured, the nature of projects being such that no lender regards their assets as security. Some fraction α of the population have personal or family assets of k^* or greater, i.e., sufficient to cover the investment costs of the marginal launch. Call these persons Group I. They include visionaries and nonvisionaries. It's essential to think of "family" as including extended family and friends, as we know from financing of entrepreneurs in some ethnic groups (Basu and Parker, 2001 have a model in which there is family financing in addition to bank loans, and family loans are based on both altruism and selfish reasons; they also have an empirical analysis of ethnic financing ties in Britain). Since an entrepreneur may be a former employee of a larger firm that will become one of his customers, some of the personal assets may be from labor earnings in that firm, and friends may include former coworkers. A person in Group I could finance all of k^* out of his own funds, but if he or she turns out to be an entrepreneur he might not do so, rather he might use some of his assets as collateral for a bank loan. He has a choice whether to seek a loan, and we assume that if he does so he will get it. The fraction α is endogenous, for it depends, in a way described below, on the distribution of k's: the number of people *able* to self-finance the marginal project depends on just how costly the marginal project is.

The remaining fraction $1 - \alpha$ of the population, Group II, would have to borrow at least some funds for a launch, but only a fraction z would be successful if they sought financing; $z < 1$ because financiers insist on more collateral than Group II people have. This lender resistance is not because they have no clues at all about the nature of the projects, but is simply a rational response to imperfect information and the lemons problem: using language reminiscent of Schumpeter, Blanchflower and Oswald say the entrepreneurial opportunities are "by their nature, such opportunities [as] are not within the vision of most other kinds of individuals (such as bankers approached for loans)" (1998, pp. 30–31). In another place they put it nicely, saying there is "asymmetric information – about whether a project is good – between bankers and those individuals in the population who were born with entrepreneurial vision" (p. 32).

So far, unsecured loans are the only possible finance other than personal or family wealth. For the entrepreneur, using debt as opposed to outside equity has two sides: one is increased risk due to financial leverage, the other is independence from other equity investors. We discuss the implications of venture capital investing via equity later.

The fraction β is the same in Group I as in Group II. The proportion e of the initial population that becomes entrepreneurs, is:

$$e = \beta\alpha + \beta z(1 - \alpha) = \beta[\alpha + z(1 - \alpha)]. \qquad (2)$$

It is the proportion of visionaries, β, times the sum of the probability they have sufficient capital plus the probability they can get a loan given insufficient capital. The number of entrepreneurs and launches is eN. The fraction of visionaries that become entrepreneurs is $e/\beta = \alpha + z(1 - \alpha)$.

One suspects a tendency for the launches with the highest k and thus the highest profits to be by entrepreneurs with access to the most capital, partly because each visionary has just one "person unit" to supply, and partly because richer visionaries can more easily self-finance and also can offer more collateral to lenders. However, nothing in the formal model assumes a high rank correlation between k and personal assets, and that seems desirable because a visionary's other skills, not just his assets, are relevant in matching people with projects and in persuading lenders.

The labor market. As noted earlier one might assume wage rates are unchanged after launches, because labor supply, via immigration, is perfectly elastic at the original wage rate. That seems an extreme assumption, so ideally a better alternative would be to specify both labor demand – the change in which is a function of the entrepreneurial launches – and labor supply – which is a function of the original population plus any immigration in response to increased demand. Since our main concern is to illuminate the role of social capital, we do not specify the labor market in detail, but we do assume that labor supply is not perfectly elastic, so that wages rise by some

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

amount. That rise becomes very important in a later argument below. We assume the inmigrants include no visionaries.

(Our approach on the labor market is different from B-O's: They assume population is absolutely fixed, and entrepreneurship forces up wages entirely due to the supply effect when entrepreneurs leave the wage labor sector; however, they are inconsistent in not allowing the increase in wages to feed back on the profitability of projects. That would be consistent only if each entrepreneur employed no one other than himself, as in the case of self-employment rather than entrepreneurship more narrowly conceived. B-O move back and forth rather freely between "entrepreneur" and "self-employed" without making distinctions, and their empirical analysis is based exclusively on data for self-employed people. Also, a fixed population is not an appropriate assumption in our case, since we are concerned with social capital in a geographical locality.)

The typical entrepreneur. We now describe the typical entrepreneur, ENT. Group II entrepreneurs must seek loans, and some fraction of Group I will seek them voluntarily, but that in itself does not specify the terms of the loans. It is necessary to spell out financing details. Faced with capital requirement k, ENT finances some fraction δ out of her own funds and borrows the remaining fraction $1 - \delta$ at interest rate d. The fraction δ obviously may depend on lenders' financing constraints that we do not model explicitly (see Evans and Jovanovic (1989) for one of the most important discussions), so it is not entirely the entrepreneur's own choice. Her personal assets before the launch amount to M, and after the launch she retains $M - \delta k$ in non-entrepreneurial assets, on which she earns a rate of return c. The parameters δ, d, and c are exogenous, which is certainly a weakness, but making them endogenous in a plausible way would complicate things considerably.

If ENT were a worker instead of an entrepreneur, money income would be:

$$y_W = w + cM, \tag{3}$$

where w is the wage in ordinary employment. It is conventional to model the entrepreneur as a single individual rather than a member of a family that has more than one wage earner. However, in empirical work it is common to recognize that nuclear family status is important. A nuclear family might have worker income higher than w, which might also reduce the perception of risk of entrepreneurship (see discussion in Holtz-Eakin et al., 1994b).

As an entrepreneur her money income is:

$$y_E = \pi(k) - d(1 - \delta)k + c(M - \delta k). \tag{4}$$

The last term is zero if she invests all her assets in the launch. The opportunity cost of being an entrepreneur is, in money terms, $c\delta k$. But being an entrepreneur earns nonpecuniary income – satisfaction from independence, thrill of competition, sense of accomplishment, etc. – so it is really utility that matters. Let U_E = ENT's utility as an entrepreneur and U_W = utility if she were a worker instead. Then:

$$U = U(\boldsymbol{x}, A), \tag{5}$$

$$U_W = U(\boldsymbol{x}_W, A_o), \tag{5a}$$

$$U_E = U[\boldsymbol{x}_E, (A_o + \Delta A)], \tag{5b}$$

where $\boldsymbol{x}$ = vector of market goods and services consumed and A = a composite variable capturing utility from nonmarket goods, such as environmental amenities, available in fixed supply; A_o = level of A available as a worker, ΔA = net addition to the composite variable due to the satisfaction or dissatisfaction of being an entrepreneur. Conventionally, ΔA is assumed to be positive in such a model, because of the value of independence and the thrill of competition, but conceivably it could be negative, for two possible reasons: the loss of leisure, mentioned earlier; disapproval by the local community, which might be high especially where social capital is strong. It is essential to distinguish $\boldsymbol{x}_E$ from $\boldsymbol{x}_W$ because ENT's consumption pattern will likely differ in the two situations. For one thing, money income may differ, and, for another, the different level of amenity will induce substitution effects on $\boldsymbol{x}$. One of our numerical examples in the appendix illustrates this effect, based on a CES utility function (B-O have a simple linear utility function).

In equilibrium, it must be true for every entrepreneur that

$$U_E \geq U_W, \tag{6}$$

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

a constraint that specifies that even a visionary will not become an entrepreneur if his or her pecuniary plus nonpecuniary rewards from entrepreneurship are lower than the opportunity cost (in utility terms). Movement into wage employment is always available, so no one will be an entrepreneur if $U_E < U_W$. Thus opportunity cost is another factor that limits entrepreneurship, in addition to the limitations of vision and of capital.

It is more useful to specify (6) in terms of the indirect utility function, V, which shows the maximum utility a consumer can achieve, by optimizing behavior, as a function of money income, y, the vector of prices of market goods, $\boldsymbol{p}$, and amenities, A (V and U equal each other if the x in U is the optimal consumption bundle). Thus we rewrite the equilibrium condition as:

$$V_E \geq V_W, \tag{7}$$

$$V_W = V[(y_W, \boldsymbol{p}, A_o], \tag{7a}$$

$$V_E = V[(y_E, \boldsymbol{p}, (A_o + \Delta A)]. \tag{7b}$$

For any entrepreneur it is possible that in equilibrium (7) is an inequality, so that he earns a rent. Indeed it is possible for all entrepreneurs to earn a rent, even the "marginal entrepreneur," that is the entrepreneur in the marginal launch. How might we describe the rent in quantitative terms? We cannot use the difference $V_E - V_W$, because V is in arbitrary utility units, but we can get a suitable measure in monetary terms from the expenditure function. The expenditure function is defined as the minimum money expenditure a consumer would have to make, assuming optimizing behaviour, in order to achieve a specified utility level, as a function of that utility level, prices of market goods, and amenities. Differences in expenditure functions between two situations are standard ways to measure differences in quality of life, cost of living, etc. (see Bolton, 1999 for a theoretical application to measure "place surplus"). If he were a worker, the entrepreneur would achieve utility level V_W by optimising his consumption. As an entrepreneur, the minimum expenditure he would need to achieve that same utility level is $EXP_E[V_W, \boldsymbol{p}, (A_o + \Delta A)]$, or EXP_E for short. But his actual entrepreneurial income = y_E. If $V_E > V_W$, then $y_E \geq EXP_E$, and the difference $y_E - EXP_E$ is a monetary measure of his rent. Note that this difference is not simply $y_E - y_W$; indeed, the entrepreneur might earn a rent even if $y_E - y_W$ is negative, because ΔA substitutes for money income. Again, our Appendix gives a numerical example based on a CES utility function.

Therefore an alternative to (7) is

$$y_E \geq EXP_E(V_W), \tag{8}$$

for every entrepreneur. That is, money income must be no less than needed to reach the same utility level attainable as a worker.

Increase in vision or ease of financing. One implication of opportunity cost is that an increase in β or z, *ceteris paribus*, will not necessarily increase permanently the number of entrepreneurs. There will be an initial increase, but that will raise w, thus raising opportunity cost, and it will also lower profits on launches. If the initial equilibrium is one in which (6) is a strict equality, then the increase can be sustained only if new launches can be found that provide higher entrepreneurial income – pecuniary and nonpecuniary – than the new entrepreneurs could earn as workers. However, we have assumed that the only projects still available are ones for which k is lower than k^*, so $\pi(k) < \pi(k^*)$, even before any adverse feedback from higher wages to profits. Therefore, the only way such new launches and new entrepreneurs can be found is if new entrepreneurs have profit opportunities, favorable financing, low opportunity costs, or a high valuation of independence, as reflected in $\pi(k^*)$ or in the d, δ, c, and parameters and the M and ΔA variables. It is of course possible to add assumptions (as Blanchflower and Oswald do, implicitly) to ensure this. On the other hand, if the initial equilibrium is one with rents, then an increase in β or z can increase the number of launches under certain assumptions on the distribution of k, and one of our numerical examples in the Appendix shows that.

The variable α clearly is an important endogenous variable, because it determines the size and composition of Group I, the part of the population in which entrepreneurship is constrained only by limitations of "vision," as opposed to Group II, in which both vision and finance are limiting. Therefore, we must specify its determination. It depends on k^*:

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

$$\alpha = F(k^*). \tag{9}$$

This dependence can be extremely complicated, but a simple example will illustrate: if the distribution of assets B in the population is rectangular between $B = 0$ and $B = B^{MAX}$, then $\alpha = 1 - [k^*/B^{MAX}]$. For example, if the distribution of assets is rectangular between 0 and 250,000, and $k^* = 200{,}000$, then $\alpha = 0.20$, meaning that 20 per cent of the visionaries could entirely self-finance the marginal launch. The relationship of α to k^* is generally much more complicated than in this example, because the distribution of assets in the population is undoubtedly much less simple, perhaps something like lognormal. Thus α depends on both the distribution of assets in the population and the distribution of k in the collection of projects. (Blanchflower and Oswald recognise the endogeneity of α, but, in our opinion, do not stress it sufficiently.)

Now we turn to modeling issues in the incorporation of social capital.

Social capital. The emphasis so far is on access to financial capital in the form of loans, just as in Schumpeter. There is extensive support in the sociological literature for the claim that social capital facilitates the founding and later success of new firms (see Brüderl and Preisendörfer, 1998 for a survey of literature and one empirical test of entrepreneurs in one region of Germany). Yet the formal model above (nor B-O's empirical testing of their version) includes nothing like a measure of social capital. There is no "community support," that is, social approval or tolerance of innovative behavior, that *social* capital might provide in its role as a *resource*. Blanchflower and Oswald say that "empirically [the probabilities β, α, and z] may be assumed to depend upon . . . personal characteristics . . . and a set of regional and industrial characteristics" (1998, p. 33), but the list of variables they consider contain no community characteristics that proxy social capital or personal ones that proxy the individual's involvement in the community and "access" to social capital. They recognize the value of adding some theory on how z is determined, but do not go down that road (p. 31).

We believe the basic framework, with its emphasis on access to "capital," is quite promising, if one expands capital to include social capital and also expands finance to include equity finance. Thus we suggest some ways to improve it. One important step is to allow ΔA to include any discomfort from social disapproval of behaving in a novel way. The intangible costs are a function of various characteristics of the social milieu, the potential entrepreneur's social "connections," and the tolerance of the community for innovative behavior. We have referred earlier, for example, to the inhibiting effect in many cultures on entrepreneurship by women. We might assume that while financial capital is necessary, financial capital cannot defray any of the intangible psychic costs. Another change is to make z a function of social capital, since social capital will affect the likelihood that lenders will lend or that members of the community (not family or friends) will supply equity finance; the idea here is that social capital affects both the likelihood that others will trust entrepreneurs' assessment of profitability.

We can formalize these ideas as follows: A fraction, β, of the persons in a community are "visionary," but of these only a fraction γ finds the social milieu supportive, or, if there is social disapproval, can tolerate the social disapproval; thus only the fraction $\beta\gamma$ of the community will consider investing their own funds in an entrepreneurial launch or seek external financing to do so. The fraction γ depends on both the social characteristics of the community and personal characteristics of the visionaries.

$$\gamma = G(\boldsymbol{S}, \boldsymbol{R}), \tag{10}$$

where $\boldsymbol{S}$ and $\boldsymbol{R}$ are vectors of social characteristics and personal characteristics, respectively; we emphasize our claim that some characteristics of what is commonly called "social capital" have positive effects and some have negative effects on γ, so $\boldsymbol{S}$ is a vector rather than a single composite variable called "social capital."

The fraction z captures both external debt and external equity finance, and it too depends on both personal characteristics of the visionary and on the social characteristics of the community. In principle, z also depends on extra-community factors, since in practice "venture capital" in the form of equity comes from both local and from wider sources (for that matter, so does loan finance –

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

many entrepreneurs, for example, borrow heavily on credit cards):

$$z = Z(\boldsymbol{S}, \boldsymbol{R}, \boldsymbol{T}), \quad (11)$$

where $\boldsymbol{T}$ is a vector of extra-community variables. Again, some items in $\boldsymbol{S}$ have positive effects and some negative. Possible positive effects are financial support of entrepreneurs by ethnic communities, easier entrée to banks and other lenders (Blumberg and Pfann, 2001), and the important sources of information from coworkers in a firm the entrepreneur formerly worked in (Renzulli, Aldrich and Moody, 2000).

The Z function may be very different from the G function, and $\partial Z/\partial S_i$ may be very different, perhaps even have different sign, from $\partial G/\partial S_i$ for the same characteristic i in $\boldsymbol{S}$. For example, assume characteristic i is the proportion of the population that has had some prior experience or contact with a failed entrepreneurial launch – "contact" in the sense of helping to finance or having other business dealings with the launch. Then $\partial G/\partial S_i$ may well be zero or positive, but $\partial Z/\partial S_i$ negative.

In this framework the proportion, e, of the original population that becomes entrepreneurs is:

$$e = \beta\gamma\alpha + \beta\gamma z(1 - \alpha) = \beta\gamma[\alpha + z(1 - \alpha)]. \quad (12)$$

Mathematically (12) is similar to (2), except that now social capital affects γ and z. Thus in this amended model, as in the original one, it is possible to have a vision-constrained or a capital-constrained equilibrium in which even the marginal entrepreneur earns a rent, but now the parameter γ is relevant along with β, α, and z, and also community characteristics are also factors because they affect γ and z.

As an additional refinement, one might want to distinguish between debt and equity as types of external finance, and model them separately in z rather than just their sum. That seems useful to do for three reasons: 1. Debt and equity are substitutes for each other, within limits; 2. The role of social capital in the supply of the two may be different; 3. The differences between debt and equity may offer a chance for empirical testing of the role of social capital, since debt-to-equity ratios of entrepreneurial firms may be observable characteristics – which is not to say data on the ratios are easily collected!

Such a refinement is, however, rather difficult, because ideally we would have to incorporate many kinds of simultaneity: between the demand and supply of debt, between the demand and supply of equity, and between the market for debt and he market for equity (as in the theory of the "cost of capital"). On the entrepreneur's side, some simplification is possible because the proportion of equity automatically equals one minus the proportion of debt (assuming, that is, there is just one kind of debt and just one kind of equity, which is actually a big simplification in a world where entrepreneurs use debt of different maturities and with different security, use both tax-exempt debt and taxable debt, and use both convertible preferred and common equity). But the model would nevertheless be quite complex, and we leave it to a future paper. We mention it here because we suspect that social capital makes a difference in the relative use of debt and equity.

An interesting effect of social capital comes from effects on residence. An entrepreneur, by virtue of mindset and/or the nature of the new business, may be tempted to leave the community. However, his prospects for financing – both debt and venture capital equity – are increased by long-time residence in the community, which increases his or her access to local social capital (Glaeser, Laibson and Sacerdote, 2000), and of course local lenders and investors have a strong interest in the entrepreneur's remaining there. If the entrepreneur's community involvement then contributes to local social capital, there is a dynamic feedback: persons with the entrepreneurial mindset who remain because financing requires it may contribute their own investments in local social capital, and perhaps in a way that avoids some of the dangers of narrowness that Grabher and others have worried about (see discussion above).

As always, we must recognize the negative effects social capital may have. Some of the sociological literature is helpful on the entrepreneurship question. In their seminal study of immigrant groups, Portes and Sensenbrenner (1993), discuss "bounded solidarity" and note: "The solidarity and enforcement capacity that promote ethnic business also restrict the scope of individual expression and the extent of extracommunity contacts. . . . The greater the social capital produced by bounded solidarity and community controls, then the

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

greater the particularistic demands placed on successful entrepreneurs and the more extensive the restrictions on individual expression" (p. 1341). Portes (1998) and Sandefur and Laumann (1998) also point out that if the community expects successful members to aid less successful ones, there is extensive free-riding on the success, which affects incentives to take risks and to expand.

Venture capital. Both Schumpeter and models such as Blanchflower and Oswald's seem dated because they omit venture capital. B-O admitted venture capitalists exist but assumed explicitly they are not prevalent enough to eliminate the information asymmetry (1998, p. 33) and so their entrepreneurs rely entirely on debt and their own funds. This is clearly an unacceptable assumption. In addition to a large literature in business economics and finance, there are recent theoretical models using more abstract economic theory (see Keuschnigg, 2000; Keuschnigg and Nielsen, 2000). Our concern here is only to indicate briefly how venture capital complicates the role of social capital.

Venture capitalists provide equity finance, monitor their investments carefully, and typically also provide extensive advice. They screen investments carefully, require the entrepreneurs they invest in to do the same, force more professional management, and add to the entrepreneur's incentives by linking his or her rewards to the firm's performance and also by staging investments (see Klausner and Litvak, 2001 for extensive detail). In one sense, these features reduce the fundamental information asymmetry and thus substitute for local social capital in reducing that asymmetry. On the other hand, it is well known that venture capitalists concentrate their investments to a large degree, though certainly not wholly, in relatively bounded geographical regions (Klausner and Litvak, 2001), so it seems likely that local social capital still plays a role in their willingness to perform their multiple functions of finance, monitoring, and advice. To put it differently, venture capital facilitates entrepreneurship most in those regions and localities that have venture capitalists in the first place, and local entrepreneurship-facilitating social capital should be a regional characteristic that attracts venture capitalists. This geographic boundedness, however, may be being reduced by the recent development of networks of venture capitalists that collectively operate on a wider geographical scale. Klausner and Litvak (2000) also point out that the venture capitalist must protect its own reputation in order to attract entrepreneurial interest. A locality or region with entrepreneurship-facilitating social capital should contribute to the community of interest between venture capitalists and the visionaries who seek financing.

After the startup. Social capital not only has a role in financing the new firm, but also in the continuing operations in its early life, which any theoretical approach incorporating social capital must recognize, especially in view of the extensive literature on things like interfirm relations that we summarized earlier. The new firm, whose startup was a result of innovation, needs to *continue* to innovate, and that requires effective mangement-labor relations, supplier relations, ongoing research, and "organizational learning" (Cole, 1995). Organizational learning includes learning from customers and suppliers as well as from activities within the firm of its own employees. Integration of suppliers is especially important because a new firm likely has a small core management team, it being a product in the first place of a single individual or a small group of individuals. It must rely on suppliers in order to exploit its first-start advantage and to expand. Some of the most important innovations in its product actually will be innovations by suppliers, and over time it may modify the basic conception of its products to take advantage of specific capacities of suppliers.

6. Concluding remarks

Our paper is a more or less first attempt to combine elements such as social capital, entrepreneurship, and spatially bound producer surplus in a common analytical framework. It is an introduction to a very comprehensive and rapidly expanding research field, where economists and economic geographers so far have not been in the forefront. The subject is obviously of great relevance to small business economics to the extent small business results from entrepreneurship.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

We have shown that social capital – although the concept has been developed within other disciplines – in most respects can be compared to other forms of capital and analyzed in the same way as them. However, social capital seems to be the most diversified of capital forms and this means *inter alia* that social capital and its impact on entrepreneurship, for example, ought to be studied in various ways at different levels. Even if social capital in the Colemanesque tradition might be regarded as a public good, it is important to underline that it is a network possession and that actors without access to the network(s) do not have access to that particular social capital.

While social capital, in the tradition of Putnam, sometimes is regarded as something entirely good, this paper has underlined its duality. It should be seen as (sometimes cooperating, sometimes competing) networks, formed by actors on different levels, and thus functioning for good or bad, depending on the situation and the actors' objectives. In the economist's perspective, this means that social capital is not only more or less productive – in its impact on transaction costs, for example – but may also be counter-productive, not least so by restricting entrepreneurial initiative.

We have depicted a schematic overview of how social capital affects producer surplus. In this cause-and-effect chain we have concentrated on the relationship between social capital and entrepreneurship. Schumpeter noted certain factors that nowadays are included in the social capital concept, but also he was aware of possible counter-productive aspects. An important addition from newer theory is the concept of "collective entrepreneurship," i.e., that regions have a "personality" that is the combined result of individual personalities, social and business interactions and networks, institutions, market structures, and, frankly, accident.

Acknowledgement

We read earlier versions of this paper at the Uddevalla Symposium 2000, "Entrepreneurship, Firm Growth and Regional Development in the New Economic Geography," Trollhättan, Sweden, June 2000, and at the meeting of the Western Regional Science Association, Palm Springs, California, February 2001. We thank Robert Formani, Jonathan Conning, Anand Swamy, and two anonymous referees for helpful comments.

Appendix: Numerical examples

These examples illustrate various interdependencies in the model and also the two different situations of rent and no rent to the marginal entrepreneur. Assume the following:

- Original population = N = 10,000;
- β = 0.01, i.e. only 100 people are visionary;
- z = 0.30, i.e., 30 per cent of people who seek external financing for a launch are successful;
- There are 100 projects available, numbered 1, 2, . . . , j, . . . , 100, arrayed such that

$$k(j) = 244{,}000 - (1{,}000)j. \tag{A1}$$

Thus, project 1 is the most costly, at 243,000, and project 100 the least, at 144,000.

- The distribution of assets, B, in the population is rectangular between $B = 0$ and $B^{MAX} = 250{,}000$, so the fraction of the population with assets greater than k^* is

$$\alpha = 1 - [k^*/B^{MAX}] = 1 - (0.000004)k^*. \tag{A2}$$

For example, if $k^* = 100{,}000$, then $\alpha = 0.60$, if $k^* = 200{,}000$, then $\alpha = 0.20$, etc.

- The number of entrepreneurs, eN, is:

$$eN = [0.01\alpha + 0.01(0.3)(1 - \alpha)](10{,}000). \tag{A3}$$

- Not having a model of the labor market for wage workers, we simply assume for this example that the equilibrium wage would be:

$$w = 24{,}000. \tag{A4}$$

- We illustrate money income and utility for one entrepreneur, J, the one who launched the marginal launch. For him, M = 150,000; $c = 0.05$; $\delta = 0.5$; $d = 0.12$; $\pi(k^*) = 0.18k^*$. Then

$$y_W = w + cM = w + 7500, \tag{A5}$$

$$y_E = \pi(k^*) - d(1 - \delta)k^* + c(M - \delta k^*) = 0.095k^* + 7500. \tag{A6}$$

His utility function is CES (constant elasticity of substitution):

$$U = U(x, A) = [X^\rho + Y^\rho + Z^\rho + A^\rho]^{1/\rho}, \tag{A7}$$

where X, Y, and Z are three market goods, with prices P_x, P_y, and P_z; A is the composite nonpriced amenity variable referred to in the main text; the elasticity of substitution = $\sigma = 1/(1 - \rho)$. In discussions of CES functions, it is common also to define the parameter $r = \rho/(\rho - 1)$. The parameters are: $\rho = 0.2$; $\sigma = 1.25$; $r = -0.25$. Assume that X and Y are specific goods, with $P_X = 2$ and $P_Y = 3$, but Z is a composite market good defined as expenditure on all market goods other than X and Y, so that $P_Z = 1$. $A_o = 100$ and $\Delta A = 182.26$.

As indicated in the main text, it is useful to work with the indirect utility function V and the expenditure function EXP. They are derived in a straightforward way from the first order conditions for constrained optimization problems (V from the

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

first order conditions of the utility maximization problem, EXP from the first order conditions of the expenditure minimization problem). For the CES utility function, we have:

$$V(y, \boldsymbol{p}, A) = [(P_x^r + P_y^r + P_z^r)^{-\rho/r} y^\rho + A^\rho]^{1/\rho}, \quad \text{(A8)}$$

$$\text{EXP}(\boldsymbol{p}, A, V) = (P_x^r + P_y^r + P_z^r)^{1/r}(V^\rho - A^\rho)^{1/\rho}. \quad \text{(A9)}$$

As an entrepreneur, with income y_E and enjoying $A_o + \Delta A$, the amount J would need to attain any given level of V_W is

$$\text{EXP}_E(\boldsymbol{p}, A, V_W) = (P_x^r + P_y^r + P_z^r)^{1/r}(V_W^\rho - A^\rho)^{1/\rho}. \quad \text{(A10)}$$

This completes the basic assumptions. Suppose one hypothesizes that the equilibrium in this example has 44 launches. From (A1) we see the marginal launch has $k^* = 200{,}000$; from (A2), $\alpha = 0.20$, and so (A3) is satisfied. We'd also have to prove that $V_E \geq V_W$ for every one of the 44 entrepreneurs. It would be pointless to construct numerical examples of 44 different persons, so we illustrate the second requirement with calculations for just one entrepreneur, namely J, the one who invested in the marginal launch. From (A4), (A5), (A6), and (A8), we have $w = 24{,}000$; $y_W = 31{,}500$; $y_E = 26{,}500$; and V_W and V_E both = 2,864,941; since $V_E = V_W$, we see that J earns no rent. Alternatively, from (A10) $\text{EXP}_E(\boldsymbol{p}, A, V_W) = 26{,}500$, and since $y_W - \text{EXP}_E = 0$, she earns no rent.

It would be possible in the equilibrium for other entrepreneurs to earn rent, because they may be different in some ways from J: They may have higher ΔA or able to arrange more favorable financing terms. It seems essential to allow for such differences in analyzing something so personal as entrepreneurship.

What happens in this example if β or z increases? The number of visionaries who have financing increases. However, given our specification of the distribution of k, any additional launches will earn a lower profit than project 44, the previous marginal launch. This will be true even if we ignore the feedback from higher labor demand. The rise in w will also raise opportunity cost. The lower profit and the higher opportunity cost together discourage additional launches, but if new launches can be matched with visionaries who have combinations of ΔA, M, c, d, and δ that are more favorable, then there can be more entrepreneurs and more launches.

As one more detail, note how J's consumption pattern differs because she is an entrepreneur instead of a worker. The Marshallian demand functions show her optimal purchases of X, Y, and Z:

$$X = (P_x^{r-1}y)\,(P_x^r + P_y^r + P_z^r)^{-1}, \quad \text{(A11)}$$

$$Y = (P_y^{r-1}y)\,(P_x^r + P_y^r + P_z^r)^{-1}, \quad \text{(A12)}$$

$$Z = (P_z^{r-1}y)\,(P_x^r + P_y^r + P_z^r)^{-1}, \quad \text{(A13)}$$

where y is y_W or y_E as appropriate. The solutions are:

	J As Worker	J As Entrepreneur
X	5,092.46	4,284.13
Y	3,067.70	2,580.77
Z	12,111.97	10,189.44

J would attain the same utility in both situations, because ΔA offsets Δx. That utility is identical can be verified by substituting the quantities in the direct utility function (A7). To illustrate the other kind of equilibrium, in which shortage of either entrepreneurial vision or of finance creates rent for the marginal entrepreneur, assume that due to a social capital effect β is only 0.0075, and the equilibrium number of launches is 30. Assume w falls slightly, to 23,750. Ignoring the effect of diminished w on π, we see from (A1), (A2), and (A3) that $k^* = 214{,}000$, $\alpha = 0.144$, and $e = 0.003$, so there are 30 entrepreneurs to match. At the same time, $\pi(k^*)$ is higher than in the previous example, because k^* is higher. Consider the person, JJ, who invested in the marginal project in this situation; assume he is identical to J in having the same utility function, same A_o and ΔA, and same M, c, d, and δ. Then it is clear that JJ will earn rent even though his is the marginal launch, because in the previous example J had zero rent but now JJ has higher y_E and lower y_W than J had. For example, if we assume project 30 earns 18%, as did project 44, then we have these numerical results: $y_W = 31{,}250$; $y_E = 27{,}830$; $V_W = 2{,}845{,}115$; $V_E = 2{,}985{,}625$; $\text{EXP}_E(V_W) = 26{,}282.39$; rent = 1,547.61.

Notes

[1] In Putnam (1993b), however, this is simplified to the statement that "social capital is a 'public good'".

[2] Flora and Flora (1993) and Flora (1998) have chosen another way of dealing with facilitating and inhibiting aspects of social capital. As they consider social capital as an abstract term that also contains negative aspects, and as they find social capital hard to operationalize, they use the concept Entrepreneurial Social Infrastructure (ESI) for organizational forms that encourage collective action of behalf of tangible goals.

[3] Collier (1998), has a detailed discussion of *externalities* as effects of social interaction.

[4] Here we use the term investment in a broader way than the formal definition, i.e., an increase of the stock of physical capital. A broader definition is necessary also in the case of human capital.

[5] Adler and Kwon (1999) base a comprehensive review of the literature and an attempt at a conceptual framework on precisely the distinction between internal attributes and external resources of social capital.

[6] How "society's interests" are to be defined is a complicated question on which we shall not take a detailed position here. We content ourselves with observing that there are fundamental human value-judgments as to what is right and wrong, and that the interests of society at large can be defined as the social, economic, and cultural goals around which a high degree of unity prevails.

[7] Cf. Flora: "Networks are most effective for the community as a whole when they are diverse, inclusive, flexible, horizontal (linking those of similar status), and vertical (linking those of different status, particularly local organizations or individuals with external organizations and institutions that have resources not available within the community)" (1998, p. 493).

[8] Many contemporary authors who discuss Schumpeter

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

emphasize he first published the book in German in 1911 (*Theorie der wirtschaftlichen Entwicklung*), but the 1934 English translation is of the second German edition (1926), which is different in some details from the 1911 original – differences which Schumpeter clearly signals in various textual footnotes, one of the more important of them being the one just cited.

References

Adler, Paul S. and Seok-Woo Kwon, 1999, 'Social Capital: The Good the Bad and the Ugly', unpublished paper, Los Angeles, CA: University of Southern California.

Arrow, Kenneth J., 2000, 'Observations on Social Capital', in Partha Dasgupta and Ismail Serageldin (eds.), *Social Capital: A Multifaceted Perspective*, Washington, DC: The World Bank, pp. 3–5.

Basu, Anuradha and Simon C. Parker, forthcoming 2001, 'Family Finance and New Business Start-Ups', *Oxford Bulletin of Economics & Statistics*.

Baumol, William J., 1990, 'Entrepreneurship: Productive, Unproductive, and Destructive', *Journal of Political Economy* **98**(5), Pt. 1, 893–921.

Baumol, William J., 1968, 'Entrepreneurship in Economic Theory', *American Economic Review Papers and Proceedings* **63**, 64–71.

Becker, Gary S., 1996, *Accounting for Tastes*, Cambridge, MA: Harvard University Press.

Blanchflower, David G. and Andrew J. Oswald, 1998, 'What Makes an Entrepreneur?', *Journal of Labor Economics* **16**(1), 26–60.

Blumberg, Boris F. and Gerard A. Pfann, 2001, 'Social Capital and the Uncertainty Reduction of Self-Employment', Discussion Paper No. 302, Bonn, Germany: Institute for the Study of Labor (IZA), Bonn.

Boadway, Robin, Maurice Marchand and Pierre Pestieau, 1991, 'Optimal Linear Income Taxation in Models with Occupational Choice', *Journal of Public Economics* **46**, 133–162.

Boadway, Robin, Nicolas Marceau, Maurice Marchand and Marianne Vigneault, 1998, 'Entrepreneurship, Asmmetric Information, and Unemployment', *International Tax and Finance* **5**, 307–327.

Bolton, Roger, 1999, 'Place Surplus', unpublished paper, Williamstown, MA: Williams College.

Bourdieu, Pierre, 1980, 'Le capital social. Notes provisaires', *Actes de la Recherche en Sciences Sociales* **3**, 2–3.

Bourdieu, Pierre and Louis J. D. Wacquant, 1992, *An Invitation to Reflexive Sociology*, Chicago, IL: University of Chicago Press.

Bowles, Samuel, 1999, '"Social Capital" and Community Governance', *Focus* **20**, 6–10.

Brehm, John and Wendy Rahn, 1997, 'Individual-Level Evidence for the Causes and Consequences of Social Capital', *American Journal of Political Science* **41**, 999–1023.

Burt, Ronald S., 1992, *Structural Holes. The Social Structure of Competition*, Cambridge, MA: Harvard University Press.

Campbell, John C., 1995, 'Culture, Innovative Borrowing, and Technology Management', in Jeffrey K. Liker, John E. Ettlie and John C. Campbell (eds.), *Engineered in Japan: Japanese Technology-Management Practices*, New York, NY: Oxford University Press, pp. 311–320.

Chung, Lai Hong and Patrick T. Gibbons, 1997, 'Corporate Entrepreneurship: The Roles of Ideology and Social Capital', *Group & Organization Management* **22**, 10–30.

Cole, Robert E., 'Reflections on Organizational Learning in U.S. and Japanese Industry', in Jeffrey K. Liker, John E. Ettlie, and John C. Campbell (eds.), *Engineered in Japan: Japanese Technology-Management Practices*, New York, Oxford University Press, 1995, pp. 365–399.

Coleman, James S., 1988a, 'Social Capital in the Creation of Human Capital', *American Journal of Sociology* (Supplement) **94**, 95–120.

Coleman, James S., 1988b, 'Free Riders and Zealots: The Role of Social Networks', *Sociological Theory* **6**, 52–57.

Coleman, James S., 1990, *Foundations of Social Theory*, Cambridge, MA: Harvard University Press.

Collier, Paul, 1998, *Social Capital and Poverty*, Working Paper No. 4, The World Bank Social Capital Initiative, Washington, DC: The World Bank.

Cooke, Philip and David Willis, 1999, 'Small Firms, Social Capital and the Enhancement of Business Performance Through Innovation Programmes', *Small Business Economics* **13**, 219–234.

Crouch, Colin, David Finegold and Mari Sako, 1999, *Are Skills the Answer? The Political Economy of Skill Creation in Advanced Countries*, New York, NY: Oxford University Press.

Dasgupta, Partha, 2000, 'Economic Progress and the Idea of Social Capital', in Partha Dasgupta and Ismail Serageldin (eds.), *Social Capital: A Multifaceted Perspective*, Washington DC: The World Bank, pp. 325–424.

Dore, Ronald P. and Mari Sako, 1998, *How the Japanese Learn to Work*, second edition, London: Routledge.

Dubini, Paola, 1989, 'The Influence of Motivations and Environment on Business Start-Ups: Some Hints for Public Policies', *Journal of Business Venturing* **4**(1), 11–26.

Durlauf, Steven N., 1999, 'The Case "Against" Social Capital', *Focus* **20**(3), 1–5.

Dyer, Jeffrey H., 1994, 'Dedicated Assets: Japan's Manufacturing Edge', *Harvard Business Review* **72**(6), 174–178.

Dyer, Jeffrey H., 1996, 'How Chrysler Created an American Keiretsu', *Harvard Business Review* **74**(4), 42–56.

Dyer, Jeffrey H., 2000, *Collaborative Advantage: Winning Through Extended Enterprise Supplier Networks*, New York, NY: Oxford University Press.

Evans, David S. and Boyan Jovanovic, 1989, 'An Estimated Model of Entrepreneurial Choice under Liquidity Constraints', *Journal of Political Economy* **97**(4), 808–827.

Feldman, Tine R. and Susan Assaf, 1999, *Social Capital: Conceptual Frameworks and Empirical Evidence. An Annotated Bibliography*, Working Paper No. 5, The World Bank Social Capital Initiative, Washington, DC: The World Bank.

Flora, Cornelia B. and Jan L. Flora, 1993, 'Entrepreneurial Social Infrastructure: A Necessary Ingredient', *The Annals*

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

of the American Academy of Political and Social Science **529**, 48–58.

Flora Jan L., 1998, 'Social Capital and Communities of Place', *Rural Sociology* **63**, 481–506.

Fruin, W. Mark, 1997, *Knowledge Works: Managing Intellectual Capital at Toshiba*, New York, NY: Oxford University Press, 1997.

Fruin, W. Mark, 1992, *The Japanese Enterprise System*, New York, NY: Oxford University Press.

Fujimoto, Takahiro, 1999, *The Evolution of a Manufacturing System at Toyota*, New York, NY: Oxford University Press.

Fukuyama, Francis, 1995, *Trust: The Social Virtues and the Creation of Prosperity*, London: Hamish Hamilton.

Gabbay, Shaul M. and Roger Th. A. J. Leenders, 1999, 'CSC: The Structure of Advantage and Disadvantage', in Shaul M. Gabbay and Roger Th. A. J. Leenders (eds.), *Corporate Social Capital and Liability*, Boston, MA: Kluwer Academic Publishers, pp. 1–14.

Glaeser, Edward L., David Laibson, and Bruce Sacerdote, 2000, 'The Economic Approach to Social Capital,' Working Paper 7728, Cambridge, MA: National Bureau of Economic Research.

Grabher, Gernot, 1993, 'The Weakness of Strong Ties: The Lock-In of Regional Development in the Ruhr Area', in Gernot Grabher (ed.), *The Embedded Firm: On the Socioeconomics of Industrial Networks*, London: Routledge, pp. 255–277.

Grabher, Gernot and David Stark, 1997, 'Organising Diversity: Evolutionary Theory, Network Analysis, and Post-socialism', in Gernot Grabher and David Stark (eds.), *Restructuring Networks in Post-socialism. Legacies, Linkages, and Localities*, Oxford: Oxford University Press, pp. 1–32.

Granovetter, Mark S., 1973, 'The Strength of Weak Ties,' *American Journal of Sociology* **78**(6), 1360–1380.

Granovetter, Mark S., 1982, 'The Strength of Weak Ties: A Network Theory Revisited', in P. Marsden and N. Lin (eds.), *Social Structure and Network Analysis*, Beverly Hills, CA: Sage, pp. 105–130.

Granovetter, Mark S., 1985, 'Economic Action and Social Structure: The Problem of Embeddedness', *American Journal of Sociology* **91**, 481–510.

Grootaert, Christiaan, 1998, *Social Capital: The Missing Link?*, Working Paper No. 3, The World Bank Social Capital Initiative, Washington, DC: The World Bank.

Hanifan, Lydia J., 1916, 'The Rural School Community Center', *Annals of the American Academy of Political and Social Science* **67**, 130–138.

Hannerz, Ulf, 1969, *Soulside: Inquiries into Ghetto Culture and Community*, New York, NY: Columbia University Press.

Hardin, Russel, 1999, 'Social Capital', in James E. Alt, Margaret Levi and Elinor Ostrom (eds.), *Competition and Cooperation: Conversations with Nobelists about Economics and Political Science*, New York, NY: Russell Sage Foundation, pp. 170–189.

Hansen, Morten T., 1998, 'Combining Network Centrality and Related Knowledge: Explaining Effective Knowledge Sharing in Multiunit Firms', working paper, Boston, MA: Harvard Business School.

Helper, Susan, 1993, 'An Exit-Voice Analysis of Supplier Relations: The Case of the U.S. Automobile Industry', in Gernot Grabher (ed.), *The Embedded Firm: On the Socioeconomics of Industrial Networks*, New York, NY: Routledge, pp. 141–160.

Helper, Susan and Mari Sako, 1995, 'Supplier Relations in Japan and the United States: Are They Converging?', *Sloan Management Review* **35**(3), 77–84.

Hirschman, Albert O., 1984, 'Against Parsimony: Three Easy Ways of Complicating Some Categories of Economic Discourse', *American Economic Review Proceedings* **74**, 88–96.

Hjalager, Anne-Mette, 1989, 'Why No Entrepreneurs? Lifemodes, Everyday life, and Unemployment Strategies in an Underdeveloped Region', *Entrepreneurship & Regional Development* **1**, 85–97.

Holmes, Thomas J. and James A. Schmitz, Jr., 1990, 'A Theory of Entrepreneurship and Its Application to the Study of Business', *Journal of Political Economy* **98**(2), 265–294.

Holtz-Eakin, Douglas, David Joulfaian and Harvey S. Rosen, 1994a, 'Sticking It Out: Entrepreneurial Survival and Liquidity Constraints', *Journal of Political Economy* **102**(1), 53–75.

Holtz-Eakin, Douglas, David Joulfaian and Harvey S. Rosen, 1994b, 'Entrepreneurial Decisions and Liquidity Constraints', *RAND Journal of Economics* **25**(2), 334–347.

Inglehart, Ronald, 1997, *Modernization and Postmodernization: Cultural, Economic and Political Change in 41 Societies*, Princeton, NJ: Princeton University Press.

Jackman, Robert W. and Ross A. Miller, 1998, 'Social Capital and Politics', *Annual Revue of Political Science* **1**, 47–73.

Jacobs, Jane, 1961, *The Death and Life of Great American Cities*, New York, NY: Random House.

Johannisson, Bengt, 2000, 'Modernising the Industrial District – Rejuvenation or Managerial Colonisation', in M. Taylor and E. Vatne (eds.), *The Networked Firm in a Global World: Small Firms in New Environments*, ch. 12.

Johansson, Börje and Lars Westin, 1994, 'Affinities and Frictions of Trade Networks', *Annals of Regional Science* **28**, 243–261.

Kent, Calvin A., 1984, 'The Rediscovery of the Entrepreneur', in C. A. Kent (ed.), *The Environment for Entrepreneurship*, Lexington, MA: Lexington Books.

Keuschnigg, Christian, 2000, 'Innovation Finance, Taxation and Growth', unpublished working paper, Saarbruecken, Germany: University of Saarland.

Keuschnigg, Christian and Soren Bo Nielsen, 2000, 'Tax Policy, Venture Capital and Entrepreneurship', Discussion Paper No. 2626, London: Centre for Economic Policy Research.

Kihlstrom, Richard E. and Jean-Jacques Laffont, 1979, 'A General Equilibrium Entrepreneurial Theory of Firm Formation Based on Risk Aversion', *Journal of Political Economy* **87**(4), 719–748.

Kilkenny, Maureen, Laura Nalbarte and Terry Besser, 1999, 'Reciprocated Community Support and Small Town – Small Business Success', *Entrepreneurship & Regional Development* **11**, 231–246.

Klausner, Michael and Kate Litvak, 2001, 'What Economists

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Have Taught Us about Venture Capital Contracting', Working Paper 221, Stanford, CA: John M. Olin Program in Law and Economics, Stanford University.

Knight, Frank H., 1921, *Risk, Uncertainty and Profit*, Boston: Houghton Mifflin.

Krishna, Anirudh, 2000, 'Creating and Harnessing Social Capital', in Partha Dasgupta and Ismail Serageldin (eds.), *Social Capital: A Multifaceted Perspective*, Washington DC: The World Bank.

Krugman, Paul, 1991, *Geography and Trade*, Cambridge, MA: The MIT Press.

Kyle, David, 1999, 'The Otavalo Trade Diaspora: Social Capital and Transnational Entrepreneurship', *Ethnic and Racial Studies* **22**, 422–446.

Lamb, Robert K., 1952, 'The Entrepreneur and the Community', in William Miller (ed.), *Men in Business*, Cambridge, MA: Harvard University Press, pp. 91–119.

Landes, David S., 1949, 'French Entrepreneurship and Industrial Growth in the Nineteenth Century', *Journal of Economic History* **9**(1), 45–61.

Liker, Jeffrey K., Rajan R. Kamath, S. Nazli Wasti and Mitsuo Nagamachi, 1995, 'Integrating Suppliers into Fast-Cycle Product Development', in Jeffrey K. Liker, John E. Ettlie and John C. Campbell (eds.), *Engineered in Japan: Japanese Technology-Management Practices*, New York, NY: Oxford University Press, pp. 152–191.

Loury, Glenn C., 1977, 'A Dynamic Theory of Racial Income Differences', in P. A. Wallace and A. Le Mund (eds.), *Women, Minorities, and Employment Discrimination*, Lexington, MA: Lexington Books.

Loury, Glenn C., 1987, 'Why Should We Care About Group Inequality?', *Social Philosophy and Policy* **5**, 249–271.

Lucas, Robert E., Jr., 1978, 'On the Size Distribution of Business Firms', *Bell Journal of Economics* **9**, 508–523.

Manove, Michael and A. Jorge Padilla, 1999, 'Banking (Conservatively) with Optimists', *RAND Journal of Economics* **30**, 324–350.

Markusen, Ann, 1996, 'Sticky Places in Slippery Space: A Typology of Industrial Districts', *Economic Geography* **72**, 293–313.

Murphy, Kevin M., Andrei Shleifer and Robert W. Vishny, 1991, 'The Allocation of Talent: Implications for Growth', *Quarterly Journal of Economics* **106**, 503–530.

Nishiguchi, Toshihiro, 1994, *Strategic Industrial Sourcing: The Japanese Advantage*, New York, NY: Oxford University Press.

Nooteboom, Bart, 2000, 'Trust as a Governance Device', in Mark Casson and Andrew Godley (eds.), *Cultural Factors in Economic Growth*, Berlin: Springer-Verlag.

Nooteboom, Bart, J. Berger and N. G. Noorderhaven, 1997, 'Effects of Trust and Governance on Relational Risk', *Academy of Management Journal* **40**, 308–338.

North, Douglass C., 1990, *Institutions, Institutional Change and Economic Performance*, New York, NY: Cambridge University Press.

Okamuro, Hiroyuki, 2001, 'Risk Sharing in the Supplier Relationship: New Evidence from the Japanese Automotive Industry', *Journal of Economic Behavior & Organization* **45**, 361–381.

Ostrom, Elinor, 2000, 'Social Capital: A Fad or a Fundamental Concept?', in Partha Dasgupta and Ismail Serageldin (eds.), *Social Capital: A Multifaceted Perspective*, Washington, DC: The World Bank.

Portes, Alejandro, 1998, 'Social Capital: Its Origins and Applications in Modern Sociology', *Annual Review of Sociology* **24**, 1–24.

Portes, Alejandro and Patricia Landolt, 1996, 'The Downside of Social Capital', *The American Prospect* **26**, 18–21.

Portes, Alejandro and Julia Sensenbrenner, 1993, 'Embeddedness and Immigration: Notes on the Social Determinants of Economic Action', *American Journal of Sociology* **6**, 1320–1350.

Prusak, Laurence and Don Cohen, 2001, 'How to Invest in Social Capital', *Harvard Business Review* **79** (June), 86–93.

Putnam, Robert D., 1993a, *Making Democracy Work. Civic Traditions in Modern Italy*, Princeton, NJ: Princeton University Press.

Putnam, Robert D., 1993b, 'The Prosperous Community. Social Capital and Public Life', *The American Prospect* **13**, 35–42.

Putnam, Robert D., 1995a, 'Bowling Alone: America's Declining Social Capital', *Journal of Democracy* **6**(1), 65–78.

Putnam, Robert D., 1995b, 'Bowling Alone, Revisited', *The Responsive Community* **5**(2), 18–33.

Putnam, Robert D., 1995c, 'Turning In, Tuning Out: The Strange Disappearance of Social Capital in America', *PS: Political Science and Politics* **28**(4), 664–683.

Putnam, Robert D., 1996. 'The Strange Disappearance of Civic America', *The American Prospect* **24**, 34–48.

Putnam, Robert D., 2000, *Bowling Alone. The Collapse and Revival of American Community*, New York, NY: Simon & Schuster.

Renzulli, Linda A., Howard Aldrich, and James Moody, 2000, 'Family Matters: Gender, Networks, and Entrepreneurial Outcomes', *Social Forces* **79**, 523–546.

Rose, Richard, 1998, *Getting Things Done in an Anti-Modern Society: Social Capital Networks in Russia*, Working Paper No. 6, The World Bank Social Capital Initiative, Washington, DC: The World Bank.

Rostow, Walt W., 1960, *The Stages of Economic Growth*, New York, NY: Cambridge University Press.

Sabel, Charles and M. J. Piore, 1984, *The Second Industrial Divide*, New York, NY: Basic Books.

Sako, Mari, 1992, *Prices, Quality and Trust*, New York, NY: Cambridge University Press.

Sako, Mari and Susan Helper, 1998, 'Determinants of Trust in Supplier Relations: Evidence from the Automotive Industry in Japan and the United States', *Journal of Economic Behavior and Organization* **34**, 387–417.

Sandefur, Rebecca L. and Edward O. Laumann, 1998, 'A Paradigm for Social Capital', *Rationality and Society* **10**(4), 481–502.

Sawyer, John E., 1952, 'The Entrepreneur and the Social Order: France and the United States', in William Miller (ed.), *Men in Business*, Cambridge, MA: Harvard University Press, pp. 7–22.

Saxenian, Annalee, 1994, *Regional Advantage: Culture and Competition in Silicon Valley and Route 128*, Cambridge, MA: Harvard University Press.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.

Schell, Douglas W., 1983, 'Entrepreneurial Activity: A Comparison of Three North Carolina Communities', in John A. Hornaday, Jeffry A. Timmons and Karl H. Vesper (eds.), *Frontiers of Entrepreneurship Research 1983*, Wellesley, MA: Babson College, pp. 495–518.

Schell, Douglas W. and William Davig, 1981, 'The Community Infrastructure of Entrepreneurship: A Sociopolitical Analysis', in Karl H. Vesper (ed.), *Frontiers of Entrepreneurial Research 198*, Wellesley, MA: Babson College, pp. 563–590.

Schumpeter Joseph A., 1934, *The Theory of Economic Development*, Cambridge, MA: Harvard University Press.

Solow, Robert M., 1997, 'Tell Me Again What We Are Talking About', *Stern Business Magazine* **4**(1).

Solow, Robert M., 2000, 'Notes on Social Capital and Economic Performance', in Partha Dasgupta and Ismail Serageldin (eds.), *Social Capital: A Multifaceted Perspective*, Washington, DC: The World Bank, pp. 6–10.

Taylor, Mark P., 1996, 'Earnings, Independence or Unemployment: Why Become Self-Employed', *Oxford Bulletin of Economics and Statistics* **58**(2), 253–265.

Taylor, Mark P., 1998, 'Self-Employment and Windfall Gains in Britain: Evidence from Panel Data', Working Paper, Essex, Colchester, U.K.: Institute for Social and Economic Research.

Triglia, Carlo, 1991, 'The Paradox of the Region: Economic Regulation and the Representation of Interests', trans. by Carl Levy, *Economy and Society* **20**(3), 306–327.

Triglia, Carlo, 1986, 'Small-Firm Development and Political Sub-Cultures in Italy', *European Sociological Review* **2**(3), 161–175.

Westlund, Hans, 1999. 'An Interaction-Cost Perspective on Networks and Territory', *Annals of Regional Science* **33**(2), 93–121.

Woolcock, Michael, 1998, 'Social Capital and Economic Development: Towards a Theoretical Synthesis and Policy Framework', *Theory and Society* **27**(2), 151–208.

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.